

**DEPARTMENT OF DEFENSE AUTHORIZATION FOR  
APPROPRIATIONS FOR FISCAL YEAR 2004**

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**HEARINGS**

BEFORE THE

**COMMITTEE ON ARMED SERVICES**

**UNITED STATES SENATE**

**ONE HUNDRED EIGHTH CONGRESS**

FIRST SESSION

ON

**S. 1050**

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2004 FOR MILITARY  
ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CON-  
STRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF  
ENERGY, TO PRESCRIBE PERSONNEL STRENGTHS FOR SUCH FISCAL  
YEAR FOR THE ARMED FORCES, AND FOR OTHER PURPOSES

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**PART 4  
AIRLAND**

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MARCH 12; APRIL 3, 2003



**DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2004—Part 4 AIRLAND**

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**DEPARTMENT OF DEFENSE AUTHORIZATION  
FOR APPROPRIATIONS FOR FISCAL YEAR  
2004**

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**WEDNESDAY, MARCH 12, 2003**

U.S. SENATE,  
SUBCOMMITTEE ON AIRLAND,  
COMMITTEE ON ARMED SERVICES,  
*Washington, DC.*

**ARMY TRANSFORMATION**

The subcommittee met, pursuant to notice, at 3:03 p.m., in room SR-232A, Russell Senate Office Building, Senator Jeff Sessions (chairman of the subcommittee) presiding.

Committee members present: Senators Sessions, Inhofe, Lieberman, Akaka, Bayh, Clinton, and Pryor.

Majority staff members present: Ambrose R. Hock, professional staff member; Gregory T. Kiley, professional staff member; and Thomas L. MacKenzie, professional staff member.

Minority staff members present: Daniel J. Cox, Jr., professional staff member; Creighton Greene, professional staff member; and Peter K. Levine, minority counsel.

Staff assistants present: Andrew Kent and Nicholas W. West.

Committee members' assistants present: John A. Bonsell, assistant to Senator Inhofe; Darren Dick, assistant to Senator Roberts; Arch Galloway II, assistant to Senator Sessions; Lindsey R. Neas, assistant to Senator Talent; Henry J. Steenstra, assistant to Senator Dole; Frederick M. Downey, assistant to Senator Lieberman; Davelyn Noelani Kalipi, assistant to Senator Akaka; Todd Rosenblum and Rashid Hallaway, assistants to Senator Bayh; Andrew Shapiro, assistant to Senator Clinton; and Terri Glaze, assistant to Senator Pryor.

**OPENING STATEMENT OF SENATOR JEFF SESSIONS,  
CHAIRMAN**

Senator SESSIONS. All right. Let us begin. But before I make my opening comments as Chairman of the Airland Subcommittee, I would like to express our sympathies to the families of the soldiers lost at Fort Drum, New York, in the training mishap. Too often, we forget that training itself puts our soldiers, sailors, marines, and airmen in harm's way. This country owes our all to them and their families, and a debt of gratitude for their selfless dedication to this country.

I would note that in recent weeks, I have had the opportunity to talk to a young staff sergeant from the National Guard in Alabama, Mr. Secretary, a distant relative of Congressman Robert Aderholt from Alabama, and he was wounded in an ambush in Afghanistan within the last couple of months. Then a few days ago, I talked to the wife of a young soldier who is part of a Decatur, Alabama National Guard unit in the same area, Special Forces, and her husband lost the lower part of his leg when the vehicle he was in hit a mine.

So we do have soldiers out there right now—as, General Keane, I know you know—and we ought never to forget that and to remember them and know that they are at great risk every day.

The Airland Subcommittee convenes today to receive testimony from the Under Secretary of the Army, Les Brownlee, and the Vice Chief of Staff of the Army, General John Keane, to explore Army transformation and modernization issues and initiatives.

I would really like to thank Senator Lieberman for his tremendous leadership on this subcommittee over the past 2 years. During that time, the Army made significant progress in its transformation as a result of his leadership and this subcommittee's work. So I am looking forward to working with him, and I will continue to maintain a bipartisan approach to national military issues.

I would like to welcome Senators Inhofe, Roberts, Akaka, and Dayton back to the subcommittee, and also our new members, Senators McCain, Talent, Chambliss, Dole, Bayh, Clinton, and Pryor. I look forward to working with them in a bipartisan manner as we have in the past on this panel.

This subcommittee is responsible for the procurement and research and development (R&D) accounts in all the Services as they are applied to Army ground systems and air platforms and the Navy, Marine Corps, and Air Force tactical aviation programs. As we understand, our decisions directly impact the future readiness of our Armed Forces. As we meet this afternoon, our Armed Forces are fighting the war on terror and preparing for a potential conflict with Iraq, while simultaneously maintaining forward presence in many parts of the world.

The Army, like our other Services, is busy, and I have no doubt about our military's ability to fight and win a war. However, we are concerned with the tremendous burdens these missions place on our citizen soldiers and the employers who support them. I hope that we do not take these soldiers or any of the soldiers, sailors, marines, and airmen in the Active and Reserve Forces for granted. That is why I am particularly sensitive to the resources allocated to the Services to perform their primary mission, to defend this Nation.

The Army request of \$93.9 billion for fiscal year 2004 represents a \$3 billion increase over 2003 appropriated levels, including \$10.8 billion for procurement, a 15-percent reduction in real terms over fiscal year 2003, and \$9.1 billion for research and development, a 20-percent increase over 2003.

Clearly, the Army has taken a risk with their procurement accounts to fund their research and development accounts—the necessary investments to transform. I support your approach to this

and a balanced approach to your budget and we will be talking about that as we go forward.

Consistent with the Office of the Secretary of Defense (OSD) transformation goals, the Army request applies funding to the Future Combat Systems (FCS), precision munitions, sensor and communications technology, science and technology (S&T), and missile and air defense programs. In order to fund these initiatives, the Army, again, used Legacy Force systems to finance the transformation.

In fiscal year 2004, the Army terminated 24 programs and restructured 24 others for \$22.5 billion over the Future Years Defense Program (FYDP), \$7.1 billion in fiscal year 2004, which was reallocated for transformation.

So long as the Army continues to make progress with fielding of the Stryker Brigade Combat Teams (SBCT) and successfully transitions FCS technologies into reality, the risk to the Legacy Force is acceptable.

Over the past several years, the Airland Subcommittee has asked the Army how they would prioritize among the Objective, Interim, and Legacy Forces. With 77 program terminations and/or restructures in the Legacy Force, it is clear that the Army has set its priorities. I applaud and support your willingness to make these tough decisions, and we will talk about them in some detail.

We will explore a wide range of issues related to the Army's transformation and modernization accounts. Secretary Brownlee, General Keane, we look forward to discussing with you the Army's priorities regarding the funding of its three axes of transformation strategy, the Objective Force, the Interim Force, and the Legacy Force.

The subcommittee is interested in hearing your views on the current status of Objective Force systems, particularly the FCS and its upcoming Milestone B review, the SBCTs, especially the Army's approach to the Deputy Secretary of Defense's directions to modify the 5th and 6th SBCTs, and the progress the Army has made, or has not made, regarding the funding of the Army Aviation Modernization Plan, specifically the Comanche helicopter program restructure and the impact of the Department's decision to restructure the CH-47 Chinook helicopter program to support Special Operations Command requirements.

We are particularly interested in hearing your rationale for terminating and restructuring a number of Legacy Force programs in order to fund the Objective Force, and the attendant risk associated with these decisions.

The Airland Subcommittee has been a strong supporter of the Army's effort to transform since the fiscal year 2001 budget request, the first submitted after the Chief of Staff of the Army announced his transformation initiative in October 1999.

The subcommittee understands the Army's need to transform and, over fiscal years 2001 to 2003, authorized the addition of over \$1.7 billion to the Army's procurement and R&D accounts to support Army transformation priorities.

Gentlemen, we welcome you and thank you both for appearing before the Airland Subcommittee today.



Before we hear your opening statements, I would like to recognize Senator Lieberman for any opening comments he might have.

#### **STATEMENT OF SENATOR JOSEPH LIEBERMAN**

Senator LIEBERMAN. Well, thanks very much, Mr. Chairman. Thanks for your very good opening statement and for your kind words about my service on the subcommittee.

I joined you—in absentia, Senator Pryor, you were welcomed to the subcommittee, and I am glad to do it in person now.

This is actually my fifth year in the leadership of this Airland Subcommittee, first as a ranking member for 2 years, then as chairman, now as ranking member again. I wanted very much to come back on this subcommittee because I believe that the substantive issues that are dealt with here, namely the subject of the hearing today, Army transformation, are among the most important affecting our national security for the decades ahead.

I also appreciate the high degree of bipartisanship that has always been the hallmark of this subcommittee. I appreciate, Senator Sessions, your statement in support of that tradition and carrying it on, and I pledge in turn to you my own full cooperation. I look forward to working with you on this important effort to modernize our ground and air forces.

Secretary Brownlee and General Keane, it is a pleasure to welcome you back to this hearing room, and to this topic. The subcommittee has been—as Senator Sessions said—a strong supporter of the Army's effort to transform, and I am proud of that record.

However, it has been a struggle for both the Army and the subcommittee. I am going to ask, Mr. Chairman, if the rest of my statement could be entered into the record. It is in part a recitation of the history of the last 4 years on this subject. I am just going to draw from a few points of it.

Over those 4 years, the leadership of the subcommittee, recognizing that the Army could not afford with the funds that it was being given to fully support its programs across the Objective, Interim, and Legacy Forces, urged the leadership of the Army to set definite priorities.

This budget that you have given us does just that. Army priorities as presented are the Objective, Interim, and Legacy Forces in that order. The Army has chosen to fund those forces at the expense of the Legacy Force at a cost of restricting modernization and recapitalization to only two divisions in the counter-attack corps.

I know that some will argue with that prioritization, and I am sure we will discuss it today at this hearing, but I, for one, want to join the chairman in giving the Army leadership credit for making some hard decisions in that regard.

The subcommittee has also seen transformation to the Objective Force as the highest priority and has targeted additional resources for that endeavor.

The Army according to this budget intends to accelerate the development and fielding of the Objective Force for an initial operational capacity (IOC) by fiscal year 2010, and I totally support that effort. However, I do want to raise questions as to whether the level of R&D funding will allow that to happen. I note that once

again the Army has submitted an Objective Force S&T unfunded requirement, this time \$40 million.

I would also question whether the maturity of the relevant technologies will allow the 2010 IOC date, and if not, whether the risk we have taken with respect to the Legacy Force then becomes excessive. Those are difficult questions and I look forward to your reasoned answers to them.

Finally with regard to the Legacy Force, I remember asking last year at a similar hearing whether the Army could afford to recapitalize three divisions and the armored cavalry regiment of the counter-attack corps. The answer, I take it, was ultimately no, as the Army now intends to do only the two divisions.

I think this year perhaps the question that we should discuss is whether the Army today and in this environment can afford not to recapitalize at least the armored cavalry regiment of that corps, which is so vital for reconnaissance and security missions.

So those are some of the issues that, Mr. Chairman, I know that our subcommittee will consider as we evaluate the fiscal 2004 budget request and mark up the defense authorization bill. I am confident that our witnesses today, two men who have served their country so honorably and ably and effectively in different capacities, can give us very helpful insight to guide us in our work.

I thank you, Mr. Chairman.

Senator SESSIONS. Thank you. It is good to see Secretary Brownlee on the other side of the table there.

Senator Inhofe or Senator Pryor, do you have any comments that you would like to make before we get started?

Senator INHOFE. No, not from me. Thank you.

Senator SESSIONS. Let me just start off then with a general question. As we noted, the Army's \$94 billion fiscal year 2004 budget—I forgot. The good staff of Secretary Brownlee is always helpful.

Secretary BROWNLEE. Yes, sir. They are very well trained, sir. [Laughter.]

Senator SESSIONS. How about an opening statement? We would love to hear from both of you. [Laughter.]

#### **STATEMENT OF HON. LES BROWNLEE, UNDER SECRETARY OF THE ARMY**

Secretary BROWNLEE. Thank you, sir. Sir, first of all, let me thank you for your very kind words about our soldiers, those who have been wounded and those who have lost their lives, and particularly those who lost their lives yesterday in training at Fort Drum. We appreciate those words very much from you to the soldiers who really belong to all of us, and to their families and loved ones, who I am sure are now mourning their loss along with us. Thank you very much, sir.

Senator SESSIONS. Yes.

Secretary BROWNLEE. Thank you, Mr. Chairman and Senator Lieberman, distinguished members of the Airland Subcommittee.

First, I would like to tell you how grateful General Keane and I are to have this opportunity to speak to you today about Army transformation.

I am grateful also to have had the opportunity to meet with some of the Members and their staffs, and I just would like to state if

there are any Members with whom I was not able to meet who would like to meet with me for any reason, I would be very happy to arrange those meetings in accordance with your convenience.

At this time, General Keane and I would like to request that our joint witness statement be entered into the record.

Senator SESSIONS. Without objection.

Secretary BROWNLEE. Sir, as I begin my second year as the Under Secretary of the Army, I am again honored to come here and testify before this distinguished subcommittee and while I thoroughly enjoy serving in my current capacity, I have to admit that I miss very much the work of this wonderful committee where truly bipartisanship is not just a word, but it is a common way of doing business, and it is recognized everywhere that I know.

But I do miss the people, both Members and the wonderful staff members, and I will always be proud to say that I was a member of the staff of this very important committee, and particularly this subcommittee where I was the lead staffer for several years before I was honored to become a staff director. In fact, I suggested the name, which it still bears, so anyway—[Laughter.]

If you would be kind enough to indulge me, Mr. Chairman, for just a few moments, I would like to say a few words about the man sitting next to me, General Jack Keane.

When I was the staff director of this committee, I had the opportunity to observe him on many occasions. Since I have been the Under Secretary, I have had the privilege of working closely with him on a daily basis. Over these past months, General Keane has only added to the very high degree of respect and admiration that I have for him. His management capabilities, dedication, loyalty, and, most important of all, the leadership that he brings to the Army is invaluable.

The Army and the American people are fortunate that General Keane serves the Army in the marvelous way that he does. I am honored to work alongside him and to accompany him here today to testify to this subcommittee on the subject of Army transformation.

John Keane and I would also like to thank you for your continued support of the Army. The 2003 budget has allowed us to make significant improvements in many key areas. We have structured our budget priorities for 2004 to reflect the same priorities as 2003: people, readiness, and transformation.

In the last year, I have had the opportunity and the privilege to visit our wonderful soldiers who are forward deployed around the world. I have visited soldiers in Korea and the Philippines, including our special forces on Basilan Island. I had the privilege of spending Thanksgiving with soldiers in Bosnia, Kosovo, Kuwait, and Afghanistan, and returned to Kuwait and Afghanistan in January.

Visiting these soldiers, as I know many of you have also, leads you to only one conclusion, that they are ready for whatever comes.

Unquestionably, we have the best Army in the world. Our soldiers are well-led, well-trained, and well-equipped. They are determined and committed. They are disciplined and professional. I have no doubt they will accomplish any mission they are given.

As I testified in last year's hearings, today's threats to our Nation's interests are more complex and diverse than at any time in our history. In order to fill our non-negotiable contract with the American people, to decisively fight and win our Nation's wars, the Army must change the way it fights and the way it deploys in the future.

It must be able to get to the fight quickly. The Army must be able to support and sustain rapid combat power efficiently by reducing its operational and tactical logistics footprint.

This is clearly a different world than the one that existed when I joined the staff of this committee in early 1984 during the height of the Cold War. Recent operations in Kuwait, Bosnia, Kosovo, and Afghanistan have illustrated the need to transform our Army.

Our heavy forces are the best in the world, very survivable and extremely lethal. But they are slow to deploy and difficult to sustain.

On the other hand, while our light forces are rapidly deployable, they lack the protection, lethality, and tactical mobility we need across the full spectrum of military operations.

Transforming our Army to meet these new requirements is not without risk. Balancing this risk is the key to successful transformation.

The most important challenge we face is to maintain a strong and lethal current force, while we are transforming. We have accepted risk in selective modernization and recapitalization. We continue to assess these risks as we balance current readiness, the well-being of our people, transformation, the global war on terrorism, and new operational commitments.

Although we are working to field the Objective Force, we also understand that the current force is the force at war today and the force that will continue to serve us for several more years.

Through the selective modernization and recapitalization I spoke of earlier, it is the current force that will guarantee our Army's near-term warfighting readiness throughout the transformation process.

The Army 2004 to 2009 Program Objective Memorandum makes a clear statement about our priorities and our risk management. We are committed to transforming the Army and have allocated funds to complete the fielding of our six Stryker Brigades, the Comanche, the Future Combat System, and other key transformation-related programs.

The Army appreciates Congress authorizing and appropriating funding for the complete fielding of the six Stryker Brigades. We have had to make some tough decisions with existing programs, terminating some and restructuring others, in order to provide the funds necessary for transformation.

These decisions have allowed us to generate billions of dollars worth of savings—savings that can be reallocated to resource essential Objective Force, R&D, and eventually procurement.

The Comanche helicopter is an example of how we restructured some of our programs. We have restructured this program using evolutionary development and an acquisition strategy that delivers capabilities in blocks. We have added time and funding to decrease program risk and to enhance the probability of success.

Ultimately, we will field a mix of manned helicopters and unmanned aerial vehicles that will give us the optimum set of capabilities.

The continued support of this Congress remains essential to the success of the Department of Defense. In that regard, you will receive soon a package of legislative proposals for the Department. These will include proposals on the management of civilian personnel, acquisition, and other key management initiatives.

I urge you to support this package and we would appreciate also very much your support and favorable consideration of the Army's budget.

Mr. Chairman and distinguished members of the subcommittee, I thank you again for this opportunity to appear before you and discuss these critical issues.

I yield the floor to my dear friend and colleague, and I look forward to your questions.

Senator SESSIONS. Thank you, Secretary Brownlee. I appreciate those remarks.

General Keane.

**STATEMENT OF GEN. JOHN M. KEANE, USA, VICE CHIEF OF STAFF, UNITED STATES ARMY**

General KEANE. Mr. Chairman, Senator Lieberman, Senator Inhofe, Senator Pryor, thank you. I appreciate the opportunity to be here with you this afternoon to talk about Army issues.

I am certainly honored to be here with Secretary Brownlee. He is a real joy to work with. We truly appreciate the leadership that he has brought to our Department.

I want to thank you up front for the support that you provided to us in the 2003 budget. We appreciate very much your support for Army readiness, for the pay compensation for our soldiers, for our civilians, and also for Army transformation.

Today, we are a Nation at war. I cannot recall a time in our history, not since World War II, when our Army has been engaged in more places than it is today. Your Army is in Kuwait, Kosovo, Bosnia, Sinai, Korea, Honduras, the Philippines, and Europe.

We have more than 240,000 troops deployed in forward stations in 120 countries around the world. To support our efforts, we have mobilized 130,000 Reserve component soldiers.

We are preparing for a war in Iraq, and we are already fighting a war in Afghanistan. I will tell you on a personal note, I do believe there is something different about this war in Afghanistan. I have been there four times in the last year and a half, and the difference is in the attitude of our soldiers.

Upon reflection, I realized that we have not deployed our soldiers on behalf of the American people since World War II. Every deployment that we have been on since World War II has been to help a beleaguered nation where some thug has imposed his will on his people or somebody else's people.

The war in Afghanistan is all about the American people. Our soldiers get it. You can see it in the intensity of their attitude and this dogged determination that they have to succeed. I asked a company commander from the 82nd Airborne Division a routine question I normally ask which is, "What is your most significant

challenge?” His immediate response was, “Sir, my most significant challenge is when we get into a fight here to control the amount of physical bravery that my soldiers display.” He said, “This is the first time I have ever been in combat.”

I asked my sergeants have they ever experienced anything like this before—those who had more combat experience—and the sergeants said, “No. We have never seen anything quite like it in terms of the scale, the magnitude of the bravery of our soldiers.” They are also inspired in their openness and directness about why they are there, and how willing they are to give up everything that they care about in life to protect America, its people, and our way of life. It is inspirational to be around them and, frankly, most of us are actually moved to tears being around them.

So there is really something special that has taken place there, and I know you are very proud of them. But we have a wonderful opportunity to visit them a little bit more than you do. I just wanted to share some of that with you.

I also wanted to share with you some lessons that we have learned in Afghanistan, just to note a few of them very briefly to you. Our Special Forces teams have excellent long-range communications, target designation, and the ability to transmit that information to all kinds of strike platforms.

Just 4½ years ago in Kosovo, we used one strike platform to drop GPS-guided munitions and that was a B2. In Afghanistan, we are using every strike aircraft we have from all Services, dropping GPS-guided munitions to include the B52 at 45,000 feet, and our Special Forces teams are communicating directly with each aircraft usually in the digital mode with no voice communication whatsoever.

It is a remarkable achievement and is a testimony to what is happening to us in joint warfighting, as we move down the vertical access, and where you are having organizations at lower levels having an enormous amount of combat power available to them that heretofore was not even imagined.

The other thing is our training strategy. Our training strategy has always been “train as you fight,” and it is a buzzword in a sense, but it has been a theology to us for 14 years. We have been dealing with asymmetric scenarios at the Joint Readiness Training Center, initially at Fort Chafee, and for the last number of years at Fort Polk.

Those asymmetric scenarios trained our Special Operations Forces and our light forces and our air forces to deal with asymmetric threats like we are facing in Afghanistan.

While the war against the al Qaeda had a strategic level, because we were fighting a network, it is obviously different because it does not represent a nation or an Army at the tactical level. We had been preparing our soldiers for that kind of war for over a decade. That is one of the reasons why they have responded so well to it.

Marksmanship, our ability to hit what we shoot at, has been excellent, and again our physical conditioning paid off in Operation Anaconda, where we operated routinely at 8,000 to 10,000 feet, and our soldiers were able to bear up under those altitudes and the stress of that fight.

Afghanistan has a higher density of mines than any country in the world. We have extracted over a million mines from that country. It has paid a price. I have three soldiers at Walter Reed right now who have all lost their limbs to it, and we have had two previous limb injuries as well.

But it is a remarkable achievement, the amount of mines that we have taken out of there, and the technology that we are using in some cases is still primitive, but nonetheless we have made some real progress.

The care and treatment of our wounded, at the point of injury, is very responsive care, designed to preserve, to treat for shock, to stop bleeding. We were able to do that—all of our soldiers have advanced combat lifesaver techniques that are beyond the first aid that we heretofore were aware of. Very rapid evacuation to a forward surgical team—not a hospital—that is just at the higher level command post. So within minutes, we have a soldier in the hands of a skilled surgeon. It has preserved the lives of many of our soldiers.

Now, the Interceptor body armor that you helped fund for us protects our soldiers against 7.62 millimeter rifle shot. We have a number of them who actually have the bullets in them and, of course, they will be trophies for life, I am sure. We would be more than happy to let them keep them. But the armor has been very significant in protecting the torsos of our soldiers.

The Apache helicopter is most notably in Operation Anaconda. We had nine helicopters in that fight. Virtually all of them were shot at, and they all had bullet holes. Twenty-seven of the 28 rotors all had bullet holes in them, and not a single one of those Apaches went down.

They were damaged to be sure, and it was just remarkable how they stayed in the fight. The soldiers, if they were here, would tell you that in the daytime the Apache helicopter provided the best close air support that they had. At night, it was the AC-130 gunship.

The CH-47 helicopter, which you have also funded for us, was the only United States military aircraft that could operate at 10,000 feet with a load. If we did not have the aircraft, we never could have taken the fight directly to the al Qaeda, as we did in Operation Anaconda, because nothing else could get up at that altitude with a heavy load. We were blessed to have it.

As we fight the global war on terrorism, we are also preparing for this war in Iraq, and much has changed in the last 12 years since we last dealt with Saddam Hussein. This time around, in this fight, we will bring with us the A3 Bradley, which has an enhanced armor and second generation Forward-Looking Infrared Radar (FLIR), and also the M1A2 Abrams tank that has an improved fire control system, and the second generation FLIR.

We have already deployed the PAC3 Patriot missile. We will have the Apache Longbow, a D model aircraft with its modern fire control system, which can detect and track and prioritize 72 of those targets at one time. It is a quantum leap over the A model Apache.

We have equipped our light force soldiers who are in Kuwait preparing for war in the recent months with new equipment such as

the advanced combat helmet; a binocular laser rangefinder, which was used in Afghanistan—it was called the Viper; and a long range sniper rifle. We have a shoot-around-the-corner sight now, pretty remarkable technology. We have brought them some robotics to help clear bunkers and buildings when we work in urban areas. We have used them very successfully in Afghanistan.

We have equipped our soldiers with the best chemical and biological protection equipment that is available in the world today. All of our soldiers have it. For the first time in our Army history, we will have unmanned aerial vehicles (UAV) that operate at the brigade and the corps levels.

UAVs and Joint Surveillance and Target Attack Radar System (JSTARS) are linked directly to our command posts today. We also have the Army Battle Command System, which integrates command and control systems found at each echelon, from the ground force component commanders at the theater, joint task force level all the way down to our individual soldiers and weapons platforms.

That is a first in combat for us. We have Common Ground Stations and we have Blue Force Tracking Systems that are in place and that will provide our soldiers with unprecedented situational awareness.

So it is evident that we have not remained static for the last 12 years. Our Army remains the dominant land force in the world, and we thank you for the support that you have been providing to us.

Our Army in Kuwait and in the other countries in the surrounding area, stand there today. They are well-trained; they are well-led; and they are well-equipped. They are ready to answer the President's call if he desires.

What much of this discussion today is about is our need to change, and even to this day, some people still ask us, "Why change? You are such a formidable Army that we see out there. There is no other force like you in the world. Why do you have to change?"

Our answer is simple. The world has changed, and the Army must adapt. We have two fundamental challenges. First, along with our sister services, the Air Force and the Navy, we know we must maintain a decisive edge and overmatch, to deter other armies, armies that are usually large and defensive in nature with some limited offensive capability that they use within their region.

If our Army is to deter these armies, it must have an offensive global reach. Then upon arrival, our combat power must be credible.

A second challenge is we must have a capability to meet a wide array of asymmetric threats—non-state actors, terrorism, weapons of mass destruction (WMD). Recognition of these two challenges has led to some conclusions. First, the tools that won the Cold War and Operation Desert Storm will not suffice for the new challenges. That is the reality.

The strategic environment is no longer relatively static. We no longer have the luxury of positioning forces and equipment everywhere they are needed to serve their purpose of deterrence. It is now going to work.



Second, we cannot hope to overmatch our adversaries by sheer quantity. The Air Force and the Navy are the largest air force and navies in the world and also the best. The Army, the standing Army, is the sixth largest in the world. We are outnumbered by China, India, North Korea, South Korea, and Pakistan and other armies that are growing.

Our superiority must come from quality rather than quantity. So, third, to achieve that qualitative superiority, we must fight in new ways characterized by simultaneous, distributed, and non-linear operations.

We have made a commitment to move our operations built on a principle of mass and attrition warfare. These are the qualities we are building into the Objective Force, a force that is built around the FCS, I know we will discuss today, which is a system of systems that is qualitatively superior, rapidly deployable, and versatile to be effective against the threats I have discussed.

This budget, the 2004 budget, supports the development of FCS capabilities by investing almost \$2 billion in our RDT&E. Ninety eight percent of our science and technology efforts that are dedicated to the Objective Force.

We intend to begin fielding the Objective Force this decade, with the first FCS-equipped unit in 2008, and its IOC is in 2010.

As we develop concepts and technologies for the Objective Force, we are fielding a Stryker Brigade, and we appreciate the committee's support of the Stryker Brigade to meet the near-term requirements and bridge the operational gap between our heavy and light forces.

The first of our six SBCTs will achieve IOC this spring. We are excited about that prospect, and we are looking forward to deploying that organization in the fall.

The third SBCT is fully funded in the 2003 budget that we are executing. The 2004 budget funds the Stryker Brigades that you have before you.

So we are also selectively modernizing and recapitalizing the existing systems as you pointed out, Mr. Chairman, to guarantee the Army's near-term warfighting readiness throughout the transformation process.

So in conclusion, let me say that maintaining a trained and ready Army now and in the future is a shared responsibility. We appreciate the help that you provided us in doing this and we look forward to your continued support and also your continued discussion on these important issues.

Thank you for your support as well, and I look forward to your questions.

[The joint prepared statement of Secretary Brownlee and General Keane follows:]

JOINT PREPARED STATEMENT BY HON. LES BROWNLEE AND GEN. JOHN M. KEANE,  
USA

Mr. Chairman and distinguished members of the subcommittee, we thank you for this opportunity to report to you again this year on the status of Army transformation.

We would first like to thank this subcommittee, and Congress as a whole, for your tremendous support of the fiscal year 2003 budget. With your help the Army received a 4.1 percent average pay increase for our soldiers and our civilian work force. Increased funding for housing allowances have reduced soldiers' out-of-pocket

expenses from 11.3 percent to 7.5 percent. The fiscal year 2003 budget also funds significant Army initiatives to retain and recruit quality soldiers, provides for upgraded single-soldier barracks, and expands many programs that improve the quality of life for our soldiers and their families.

We also appreciate your continued support of our Army's Transformation goals. With your help the fiscal year 2003 budget fully funds our third SBCT, provides an additional \$105 million for the Army's Future Combat Systems, \$173 million for the development of an FCS non-line of sight cannon, and also funds \$874 million for the Comanche helicopter system.

Across the board, the fiscal year 2003 budget sends a strong message of congressional support for our soldiers, civilians, and families—and clearly indicates your resolve to help sustain the readiness of our Army as we transform for the future.

#### THE ARMY AT WAR

Today our Army is engaged throughout the world—fighting the global war on terrorism, providing peace and stability to regions throughout the world, and preparing for a potential war in Iraq. Our simultaneous commitment to these operations, and the successes we have achieved, clearly indicate our military capability and state of readiness. Our soldiers demonstrate every day that they are trained and ready to respond to these requirements—to fight and win the Nation's wars. With the support of Congress and the administration, the Army will continue to fulfill its role in the war on terrorism, maintain our near-term readiness, and rapidly transform to fight and win our future conflicts.

#### OPERATIONAL LESSONS

Operations throughout this past year have reinforced the value of joint operations, precision weapons, and the necessity for coordinated air-ground integration. We demonstrated that by compelling an enemy to mass, ground maneuver forces maximize the effectiveness of America's tremendous airpower. We also effectively incorporated the leading edge of our emerging technologies to maximize our battlefield advantage—demonstrating future concepts and validating General Shinseki's vision of a transformed Army and the fielding of the Objective Force beginning in this decade.

#### THE NEED TO TRANSFORM

The global environment has changed and the Army must change with it. Our military has demonstrated time and again that it is the finest force ever assembled. As a result, our adversaries understand that they cannot face our capabilities head-on. They are therefore changing and evolving in an attempt to exploit our vulnerabilities.

In view of these factors, and our non-negotiable obligation to defend the American people against all threats, the Army must change the way it fights and the way it deploys. Our Army must be able to rapidly deploy and sustain itself in distant anti-access and area denial environments. We must be able to rapidly find the enemy and deny them sanctuary by providing persistent surveillance, tracking, and rapid engagement. We must leverage technologies and innovative concepts to develop inter-operable joint command, control, communications, computers, intelligence, surveillance, and reconnaissance, or C<sup>4</sup>ISR, and information networks that will provide our forces with unparalleled situational awareness and the ability to network joint fires. We must be able to maintain information systems in the face of attack and conduct effective information operations.

Developments in technology and our pursuit of network-centric warfare will allow the Army to break our ties with the Cold War formations that relied on the principle of mass and the build-up of large forces. We will possess unprecedented situational awareness that will enable Army formations to maneuver with greater precision and dispersion. We will know where the enemy is and where our own people are, and we will be able to impose our will on the enemy at the time and place of our choosing. We will exploit vertical envelopment to avoid large movements along predictable lines of communication and focus our efforts on the enemy's strategic centers of gravity. We will transform to a more strategically responsive force that is dominant across the full spectrum of military operations. With changes to doctrine, training, leader development, organization, materiel acquisition strategies, and soldier systems, the Army is taking a holistic approach to its Transformation. The result will be a different Army, not just a modernized version of the current Army.

Readiness remains our constant imperative. Therefore, transformation consists of three interrelated elements—the Objective Force, SBCTs, and the Current Force.

We will develop concepts and technologies for the Objective Force while fielding SBCTs to meet near-term requirements and bridge the operational gap between our heavy and light forces. Simultaneously, we will selectively modernize and recapitalize existing systems in the Current Force to provide enhanced capabilities that will guarantee our readiness throughout the transformation process.

#### THE OBJECTIVE FORCE

Built around the FCS, the Army's Objective Force is the future joint, interagency, and multinational precision maneuver instrument for this Nation. Comprised of modular, scalable, flexible organizations for prompt and sustained land operations, it will be more lethal, more agile, and more rapidly deployable.

By focusing much of its investment in science and technology, the Army will create a new family of ground systems called the Future Combat Systems. In the fiscal year 2004 budget alone, we are investing \$1.79 billion in research, development, test, and evaluation (RDT&E) to design and develop Objective Force and enabling technologies—technologies that will take us to the system development and demonstration phase for the Future Combat Systems (FCS).

FCS is an integrated system-of-systems that reflects a paradigm shift from surviving a first round hit to avoiding a first round hit. FCS development includes low-observable stealth technologies, smaller caliber rounds, indirect fires systems and direct fire weapons with greater range and increased lethality, and integrated command and control that provides our forces with a common situational awareness. In May of this year, we are confident that FCS Milestone B will transition the FCS program from Concept and Technology Development into Systems Development and Demonstration (SDD). The Army will begin fielding the Objective Force in this decade with the first FCS combat maneuver force equipped in 2008—Initial Operating Capability (IOC) for this unit is expected in 2010.

The Comanche helicopter is the centerpiece of the Aviation Modernization Plan and will be the first new system to reach IOC within the Army's Objective Force. The Comanche will correct the Army's most critical battlefield deficiency—aerial armed reconnaissance—with a capable, survivable, and sustainable aircraft. Continued development of the Comanche helicopter is projected to provide an initial training capability in December 2006 and IOC by September 2009.

FCS and Comanche are essential to Army transformation, but transformation is more than hardware. We cannot truly transform the Army without transforming the way we do business—from transformation of logistics and acquisition, to personnel and installation transformation. Revolutionizing Army business management practices achieves the best value for taxpayers' dollars; conserves limited resources for investment in people, readiness, and transformation; enhances management of personnel systems, installations and contracting; and augments our potential to accelerate the arrival of the Objective Force. Changing the Army is first about changing the way we think, and better business practices represent practical application of common sense initiatives that best serve the Army and our Nation.

We will harmonize our transformation efforts with our sister services, business and industry, and our science and technology partners to provide the best force possible that will allow us to arrive early to dissuade or deter conflict or, as required, swiftly defeat an adversary. We will be better able to See First, Understand First, Act First, and Finish Decisively.

#### STRYKER BRIGADE COMBAT TEAMS

Stryker Brigades fill a capabilities gap between our lethal, survivable, but slow-to-deploy heavy forces and our rapidly deployable light forces that lack the protection, lethality, and tactical mobility that we seek. They respond to Combatant Commander requirements across the spectrum of military operations and provide the increased operational and tactical flexibility to execute fast-paced, distributed, non-contiguous operations. SBCTs also provide an invaluable means of spearheading Transformation. The SBCT trains junior officers and noncommissioned officers—tomorrow's commanders and command sergeants major—in the tactics, techniques, and procedures that we are developing for employment of the Objective Force. They will help to identify the soldier-leader skills required in the Objective Force and assess our current ability to cultivate those skills.

By leveraging platform commonality, enhancing logistics practices and enablers, and reorganizing logistics formations, the SBCT is more deployable and sustainable than our heavy forces, while significantly increasing combat power generating capabilities. Augmented for sustained operations, the SBCT requires 37 percent fewer combat service support personnel than a digitized heavy brigade.

The Army began fielding the first SBCT just 2½ years after announcing our intent to field such a force. In the spring of 2003 we will achieve IOC with the first SBCT at Fort Lewis, Washington. IOC for the remaining five SBCTs will occur each year thereafter through 2008.

The transformation of four Active component brigades to SBCTs provides a rotational base with three of the SBCTs focused on the Pacific theater. One of the two SBCTs fielded at Fort Lewis will be forward-based in Europe not later than 2007. The Stryker Cavalry Regiment will support the XVIII Airborne Corps' critical need for robust, armed reconnaissance. The conversion of a Reserve component brigade to an SBCT will enhance our Strategic Reserve and support the global war on terrorism, smaller scale contingencies, and homeland defense missions. SBCT stationing also provides rapid, strategic responsiveness through power projection platforms capable of supporting four critical regions described in the 1-4-2-1 defense construct.

The Army has resourced six SBCTs in concert with the 1-4-2-1 defense construct and national security requirements. However, at this time the Secretary of Defense has only authorized the procurement of the first four brigades pending the Army's plan for potential modifications to Stryker Brigades five and six. We intend to work with the Secretary of Defense and this Congress to assure that all six Stryker Brigades are fielded with the force structure and capabilities they need to possess.

#### THE CURRENT FORCE

The Current Force is the force at war today. Through selective modernization and recapitalization, it is the force that will guarantee our Army's near-term warfighting readiness throughout the transformation process.

Because the Army bypassed a procurement generation during the 1990s, the Army's combat support and combat service support systems now exceed their 20-year expected life cycle, and 75 percent of our critical combat systems exceed their expected half-life cycle. To maintain operational readiness while preserving resources for transformation, the Army is recapitalizing and selectively modernizing a portion of the current force. The modernization program addresses the critical issue of Active component and Reserve component interoperability and serves as a bridge to mesh these two components seamlessly.

In general, the Army increased funding for programs that are clearly transformational and support the defense transformation goals, sustained funding for high-priority systems that will transition to the Objective Force, and reduced funding for systems not essential to Army transformation. The Army remains committed to its 17-system recapitalization program, but we have reduced the prioritized recapitalization program from three-and-one-third divisions to two divisions in order to invest in transformation.

#### FUNDING TRANSFORMATION

The Army continues to make the difficult choices necessary to generate resources to fund transformation while sustaining acceptable risk to current readiness. In the previous three President's budgets submitted to Congress, the Army terminated or restructured 29 research, development, and acquisition (RDA) programs worth \$12.7 billion. In the 2004 President's budget, the Army accelerates its efforts to realize the Objective Force this decade by terminating 24 RDA programs and restructuring 24 others to generate \$22.5 billion for transformation. These cost savings, in concert with congressional and Office of the Secretary of Defense funding increases, enable the Army to fund our key transformation priorities—the fielding of six SBCTs, Future Combat System science and technology and system development, and our prioritized modernization and recapitalization program.

#### RECAPITALIZATION AND MODERNIZATION

Recapitalization is the cornerstone of the Army's strategy to sustain its warfighting capability throughout the fielding of the Objective Force. We are committed to the recapitalization of two divisions in the Counter Attack Corps and Army aviation modernization and restructuring. Our strategy is to selectively rebuild or upgrade systems that will remain in the inventory for the next 15 to 20 years and achieve an average fleet age of no more than half of a system's expected service life. These systems include the M1 Abrams tank, M2/M3 Bradley Fighting Vehicle, AH-64 Apache, UH-60 Black Hawk, and CH-47 Chinook. This investment in future readiness will sustain warfighting capabilities, reduce the cost of ownership, and extend the service life of systems until the Objective Force is fielded throughout the Army.

Aviation transformation further demonstrates the Army's hard choices in balancing risk to resource transformation. Our interim plan—now in progress—eliminates Vietnam era aircraft from the force, lowers operating and sustainment costs, and postures aviation for arrival of the Objective Force by 2010. Apache modernization is an integral part of the Army Aviation Transformation Plan. The AH-64D Longbow heavy attack team will enhance domination of the maneuver battlespace and provide the ground commander with a versatile, long-range weapon system against a range of fixed and moving targets. The UH-60 Black Hawk continues to be the assault workhorse of Army aviation, executing over 40 percent of the Army's annual flying hours. We are extending the life of the UH-60 while providing it with capabilities required of the future battlespace. Similarly, the Army is fully committed to the CH-47F Chinook program. Its heavy-lift capability is invaluable to transforming the Army. As we restructure and standardize attack and lift formations across the force, we will also adjust the stationing and alignment of Reserve component aviation units to mitigate the near-term risk.

#### CONCLUSION

For nearly 228 years, the Army has kept its covenant with the American people to fight and win our Nation's wars. In all that time, we have never failed them, and we never will. The war on terrorism, the requirement to secure the homeland, and the need to maintain readiness for possible near-term contingencies have validated the need for a new kind of Army—a capabilities-based ground force that can fight and win battles across the full spectrum of military operations.

Building and maintaining an Army is a shared responsibility between Congress, the administration, those in uniform, and the American people. Working with Congress, we will keep the Army ready to meet today's challenges and continue to make significant strides toward the fielding of our Objective Force.

Mr. Chairman and distinguished members of the subcommittee, we thank you once again for this opportunity to report to you today on the state of your Army. We look forward to discussing these issues with you.

Senator SESSIONS. Thank you very much.

Those are good reports. We are indeed stressing our forces and the Army much more than anyone else while we expect the Services to transform. At the same time you are not given a lot of extra money, very little extra money, a \$3 billion increase over last year's budget for the Army, which is what? A little less than 4 percent, a little over 3 percent is all, which is only slightly above the inflation rate.

So we are asking you to do a lot of important things simultaneously. My impression is that this Congress appreciates your efforts and is pleased that you are making as much progress as you are.

General Keane, thank you for that good report about the morale of your soldiers. That is what I am feeling as I talk to them. I have been with three different Guard and Reserve units who have been activated from Alabama. They were motivated.

I talked to several of the guys after Operation Anaconda that were in Walter Reed. One had shown me where a bullet hit him. He was shot in the leg and the arm, but that vest saved his life, and that is the kind of advancement in combat that you are to be commended for.

The Army's \$94 billion fiscal year 2004 budget request included \$10.8 for procurement and \$9.1 billion for research and development. In order to make these significant changes to your investment accounts, the Army made some very difficult choices. Would you explain, Secretary Brownlee first and then General Keane, your comments would also be welcome—would you explain the difficulties you went through the choices and difficult challenges you faced as you had to develop this budget?

Secretary BROWNLEE. Mr. Chairman, first of all, when you talk about the difficulties, I have to recognize my good friend here again, because before I even came to the Pentagon, General Keane had headed up a task force to do an analysis of the recapitalization of the current Army force. Shortly after I got down, I received that briefing, and it is one of the finest I have ever received. It is one of the finest studies I have ever seen the Army do.

The important point here is that the analysis was so thorough for each piece of equipment in the current force that is key, it is almost like putting a dollar at a time on these systems to ensure that they last as long as they have to, but no more. The good thing about that is we are not wasting money on things we should not. But the other good point is that we have a good feel for what we are buying and how long it is going to last.

Having said that, the difficulty is in making the hard decisions and the tradeoffs, because as I have indicated and General Keane has indicated, the current force that we have is one that we are going to war with tomorrow if we must. It is the one that will have to last us for several years, because as you well know, the first unit of the Objective Force would not have an initial operating capability until 2010, and the world supply would consist of one unit of action at that time, or roughly one brigade size.

So we are going to have this current force with us for some time. We have taken very seriously what is required to recapitalize and modernize that force. As we have gotten deeper into the Future Combat System and what is required to develop these very critical technologies and to bring them to fruition in a way that allows this very complex system of systems to come together in the right way, it is very costly.

So we have had to make tradeoffs. The tradeoffs involve risk. My view of this is that the most serious thing that we face every day is the decisions we make on those kinds of tradeoffs.

I believe that we are making the right decisions. They are not easy, as I said, but they have certainly been analyzed thoroughly. You mentioned the three and a third divisions in the counter-attack force, we are still going to have three and a third divisions in the counter-attack force, but only two of them will be fully modernized.

So we are still examining other things that we can do to hold the other parts of that up and make sure that it is still capable.

General KEANE. This became a crucible for us, and we were at a crossroads in coming to the decisions to make that. First of all, the fact that we were recapping and modernizing the heavy corps at Fort Hood, which in broad definition was three divisions and a third armored cavalry regiment (ACR), was a wise decision.

What was driving that decision is that our operation and support costs were increasing at 10 percent per year. So in the 3 years that we were looking at it, it had gone up 30 percent. You just cannot run a business that way.

We were just getting ourselves in a hole, because much of our equipment has passed its average life of 20 years, and that is why those operational support costs are as high as they are.

So that drove us initially to the analysis that Secretary Brownlee referred to and the recapitalization and modernization program

itself. We made a decision for a three and a third as a hedge against the uncertainty of the future and to keep that modernized.

Then as we started to look at the Objective Force and to try to field that force in 2008 and in 2010, and to meet the financial obligations to do that, we had to revisit this decision. It was the toughest decision I had been involved with in 4 years here. We took all of our systems, the 24 systems—

Senator SESSIONS. Precisely, what was the toughest call? What were you deciding?

General KEANE. The toughest decision was to take money out of the recap and modernization program for the third division and the ACR and to take that money and put it into the FCS Objective Force. That was a tough decision.

Also, commensurate with that was the program kills of the 24 systems. In the previous 3 years, as this committee knows, we killed 29 systems. Added to that were these 24.

The challenge we have is that we know that we have to do this within the amount of money the Army has allocated, that when we look down the hallway at the Department of Defense, nobody is going to give us extra money to do this. So we have to go into our own accounts and figure out how best to provide a current force that is capable for a number of years to come, and also field a future force to meet the emerging threats that we have and trying to find the balance to do that is really the issue.

It takes our collective judgment and our wisdom to find that balance. It is not easy. Now, we have talked about it quite a bit and discussed it and analyzed it.

In the 24 systems that we terminated, which was another tough decision, we put them through some analysis. We wanted to know did those systems support Army transformation? Did the systems satisfy essentially core requirements for the Legacy Force against the emerging crisis and adversaries that we are going to deal with in the next decade?

What was the operational risk if the system was killed? Was the requirement baselined to contribute to the Objective Force? Could the industrial base accelerate to a rapid fielding option if needed in response to short notice operational contingencies?

Then we looked at it from a warfighting analysis. We looked at it from a business case, as well. We wanted to consider the return on investment, to assess how much operational enhancement was realized compared to affordability.

We looked at its impact on the industrial base, which is not something that we take lightly. Could material meet the required schedule? What was the technology risk of the material solution? That was the kind of analysis that we put ourselves through in terminating those 24 programs and restructuring the others.

So I think what we are saying to you, Mr. Chairman, is that we made a very difficult decision. If we had more money, we would not have made this decision. Without any more money, we believe that we have balanced the risk, and that this is an acceptable, prudent risk to do what we are doing.

Senator SESSIONS. We thank you for that. We will do a 6-minute round and next will be Senator Lieberman, followed by Senator Inhofe and Senator Pryor.

Senator Lieberman.

Senator LIEBERMAN. Thanks, Mr. Chairman.

Secretary Brownlee, General Keane, thanks for very good opening statements.

General Keane, you talked some about lessons learned from Afghanistan. I want to go back to Operation Anaconda, in which, as we know, tragically several Special Operations Command soldiers were killed.

The commander of the Army forces in that battle was critical of the time it took to acquire close air support when needed. There have been recent indications that the Air Force and Navy have subsequently refined their close air support procedures, so as we meet here today, obviously, there is a sense of imminence about military action in Iraq.

I wanted to ask you, with that in mind, are you more confident from an Army point of view of a timely close air support being provided, should ground forces be called upon to invade Iraq?

General KEANE. Thank you for the question, Senator. You are right. We did have close air support challenges in that operation. Most of them revolved around the length it took to respond to a request from a battlefield commander.

We were in close combat with an enemy which was within, in most cases, a football field length away. In one of the cases where we were really asking for close air support, we were outnumbered—the enemy had about 350 soldiers, and we had 60. We were outnumbered and fought against them for 12 hours.

Miraculously, due to the bravery of the battalion commander, we won that fight. We had 30 soldiers wounded. This battalion commander from the 10th Mountain Division took the 30 other soldiers, some of whom were his staff officers and staff NCOs, and some infantry, and he physically led two assaults against the positions that were at a higher altitude and fortified.

Obviously we have decorated him for heroism. He killed 60 when he did that and then the al Qaeda left the field. It was the skill of our soldiers and their will that brought about that victory, but during that day, during those 12 hours, he suffered from a lack of what the Air Force and the Army both would consider adequate close air support.

So as a result of that, my counterpart in the Air Force, Doc Foglesong, and I have met with the leaders of the Army and Air Force, and brought to a conference room like this, all the battlefield commanders who were there, that battalion commander, the other battalion commanders, the Air Force wing commander, squadron commanders, all the people who were controlling the airplanes from all the Services and all the ground people into one room. We looked at what was wrong and what happened.

I wish all of you could have just listened to the honesty that was in that room that day, as we tried to solve a problem, knowing full well that we could get soldiers or marines hurt if we did not solve this problem. The people were not interested in protecting their parochial service or prerogatives. They were just interested in solving the problem.

Solve the problem, we did. We had a series of meetings to do it, and our problem is one that our cultures, we let them drift a little



bit apart from Operation Desert Storm with the advent of precision-guided munitions.

As a result of that, we have to make some procedural changes, which we are making, and have made. We have to make equipment changes, so that our special forces and our infantry soldiers have the same equipment that the trained air/ground team has. The Air Force provides that equipment to our organizations. We have to make some doctrinal changes, as well.

So as a result of all of this, we think we have all of those changes in place, and we took it very seriously, the criticism that came from our subordinates, who said this was not right. The leadership took it on to do something about it. We think we have done that.

Senator LIEBERMAN. Sir, that is very reassuring. Those changes are in place now as we contemplate action in Iraq?

General KEANE. With the impending nature of what was taking place with the potential war with Iraq, we knew we had to get this fixed. We did not have a lot of time to study it.

Senator LIEBERMAN. Yes.

General KEANE. We had to do it quickly.

Senator LIEBERMAN. I appreciate the answer. Let me ask one of the questions that I raised in my opening statement as to whether the level of research and development funding will enable you to reach the IOC of 2010 for the Objective Force, and if it does not, whether the risks—and obviously we all acknowledge that there is not enough to go around, so there is some risk—that we have taken with respect to the Legacy Force then may become excessive? Secretary Brownlee?

Secretary BROWNLEE. Yes, sir. This is the question we continually ask ourselves.

Senator LIEBERMAN. Sure.

Secretary BROWNLEE. If we take money out of the current force and the FCS, the Future Combat Systems does not show up on time, we are left holding the sack here. So this is not something that we have just left to chance.

We have studied very carefully these critical technologies that will enable us to field Future Combat Systems. All the indications are that the studies of an outside group we asked to come in and look at this indicate that these technologies should enable us to do that.

The question you posed, I think, is if there are not enough funds available.

Senator LIEBERMAN. Right.

Secretary BROWNLEE. The affordability of FCS and the producibility of FCS on the schedule that we have outlined is something we still do not know for certain. It will probably be a year or two before we know better—before we know well enough to make that decision.

So we are in the process of establishing some metrics that will allow us to continually monitor where we are and what we are doing, and again, thanks to this great analysis that Jack and his team did on recapitalization, we believe that we will be capable if we are able to make the decision at the right time to revisit some of the recapitalization, modernization, if we have to, so that we would be able to go back and say, "Okay. This is not going to show

up on time,” or, “We cannot afford it on the schedule we are on, therefore we are going to have to reinvest and maintain the current force for so much longer.”

Senator LIEBERMAN. General Keane, what about the unfunded requirement of \$40 million for Objective Force science and technology? Should we be concerned about that? Should we be pushing to see if we can fund it for you?

General KEANE. We would take any assistance that you would be willing to provide.

Senator LIEBERMAN. It has been your traditional strong position on those issues.

General KEANE. As I said before, we put \$1.79 billion into that and we reduced our procurement account, so that we could actually put more money into R&D, which is what we thought the appropriate priority would be for the Objective Force. The procurement account this year actually has gone down when compared to previous years, which I know may be of concern.

But the reason for that is so that we could put those monies into the R&D program. We just were not able to put everything that we wanted to do in it.

Senator LIEBERMAN. My time is up. Thanks, Mr. Chairman. Thank you, both.

Senator SESSIONS. The numbers I have and see, if they are correct, show that you cut \$10.8 billion from procurement, which was a 15-percent reduction in real terms over 2003.

Secretary BROWNLEE. That is correct.

Senator SESSIONS. A \$9.1 billion increase for research and development, which was a 20 percent increase over—

Secretary BROWNLEE. Correct. Those numbers are correct, sir.

Senator SESSIONS. Obviously you needed every dollar, or you would not have—if you need more, we need to know, I guess.

Secretary BROWNLEE. What you just said, Mr. Chairman, reflects exactly what we set out to do, to spend more money, to develop these systems for the future at the expense of those we currently have, while at the same time, ensuring those that we currently have are ready enough to do what they have to do.

That is not something that is easy to do. I know General Keane takes it very seriously, as does the Chief and the Secretary, and the Secretary of Defense as well.

Senator SESSIONS. Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman. First of all, let me echo what both of you said about our troops and about the spirit that is out there.

I spent some time at Landstuhl and talked to a lot of these people who are coming back. In fact, the downed CH-47 helicopter crew was there. I remember—although it was not your service; it was the Navy. I remember so well, because this young lady’s name was Tennes and she was on the U.S.S. *Tennes*. It is the accident you all are aware of where she, during a refueling operation, got tangled up in the hose, and it took her down free falling, crushing her lungs and all of that.

I talked to her in the hospital, and her only concern was getting back to the unit and making a career of the Navy. I got the same response from everyone we talked to there. So clearly that is it.

But I feel guilty because I do not think we are giving them the best support that they need. Now, Senator Lieberman was talking about close air support and the deficiencies in Operation Anaconda.

General Keane, it seems to me that at one of our hearings I asked the question that if we had had a competitive, more sophisticated artillery system, such as the Crusader, which was cancelled, could you have used it at that time? I think you said, "Yes, even though it is heavy and hard to get up." It had the range and the rapid fire to give you better support. Does my memory serve me right?

General KEANE. That is correct. That is my own opinion obviously, and I am not the combatant commander.

Senator INHOFE. Yes, I understand that.

General KEANE. I am not the ground commander.

Senator INHOFE. But when that was cancelled—and I can understand what we all went through in trying to get to the FCS, trying to get it to a lighter, more efficient system. We have come up with, of course, the Non-Line of Sight (NLOS) cannon, and that is one that could have been taken up there, in terms of the size and the maneuverability and how it can be transported.

I am a little concerned. Last year, when we had the NLOS cannon in as a part of the FCS, Secretary Brownlee, it was on two different program elements (PE).

Secretary BROWNLEE. Yes.

Senator INHOFE. This year it is coming back on one.

Secretary BROWNLEE. Yes.

Senator INHOFE. Now, if there is a slippage in the FCS, my concern is that that portion of the FCS stay with its deployment date of 2008. What are your feelings about that?

Secretary BROWNLEE. Sir, our intent is to field the FCS cannon in the year we have indicated, 2008. That is our intent. That is what the Army intends to do. That is the way we are funded to do it. Hopefully, the rest of FCS will come along with that.

Senator INHOFE. Yet—

Secretary BROWNLEE. Our intent with the FCS cannon, because of the urgent need for it, is to field it during that time period.

Senator INHOFE. Although I disagreed with the decision of termination at the time and everyone is aware of that, I will say something good has come from that, because there is awareness—you guys were aware of it, but a lot of us on this side were not—as to the deficiency we have in our artillery capability. The Paladin—I will not mention names—but when I talked to some of our own Senators that are on this committee, and said, "Are you aware that you have to swab the breech after every shot?"—almost reminiscent of the Civil War—and, of course, this is 1950s' technology. They were not aware of it. Now that awareness has come up.

That is the reason that I feel that even though—yes, I want it to be compatible as far as the chassis is concerned, as far as the weight, and the characteristics with the FCS, in the event that there is slippage, I want to do everything I can to be sure that that part of it does not slip, because I believe that is a deficiency that we have that we need to correct.

Any comments on that?

Secretary BROWNLEE. Senator, as you indicate, there is a clear advantage to having the common chassis for this whole family.

Senator INHOFE. Yes.

Secretary BROWNLEE. But the need to have the improvements in those kinds of artillery, fire power pieces that we need on the battlefield has caused us to commit to the fielding of the FCS cannon, NLOS, as you referred to it, by 2008.

Senator INHOFE. Good.

Secretary BROWNLEE. That is certainly our intent. I just really—that is long on time, but—

Senator INHOFE. Yes. No, I understand. That is—

Secretary BROWNLEE. That is our intent to—

Senator INHOFE. Do you generally agree with that, General Keane?

General KEANE. I do, and I—

Senator INHOFE. Okay.

General KEANE. The NLOS cannon—I mean, obviously we have a problem with overmatch of artillery by our adversaries. There are a number of countries that clearly outrange us and outgun us. That has been our concern from the beginning.

That concern is resident today. The NLOS cannon will solve that overmatch problem. Certainly while that schedule is ambitious, we clearly want that to happen. What we will do in the Army leadership is make sure that we are not going to let any of those funds drift away on us to other priorities, because it enjoys such a high priority with—

Senator INHOFE. I know it does. That is the point I am trying to make. While FCS is very significant and we want to get to the Objective Force, there are some deficiencies we have today that can be met by the early deployment of parts of that, which should have priorities.

I hear over and over again that we have the best Army in the world and all this—I know we do—and the fact that, yes, we are ready. Unfortunately, a lot of people misinterpret that as everything can go as it has been going, and everything is going to stay as ready as it is today. I do not believe that.

Now, when you look at the budget since the 1990s, we have had a 34 percent cut, while undergoing a 300 percent increase in mission rates—now this is a real serious problem. While, yes, we are ready today, these Senators over here and I spend a lot of time talking to our Guard and Reserve—the Reserve component of all Services, but mostly the Army.

Many of the critical Military Occupational Specialties (MOS) are disappearing. We are not able to do this and so I do not know how long we can continue down this road. So I would like to have you talk in terms of what we are going to have to do in the future?

Let us look at the number of divisions. We went from 18 down to 10. Some people are saying now, “Well, the Army is not important,” or, “The ground effort is not important. We can get by with six divisions.”

Right now, in your professional judgment, faced with the type of challenges we have, what would you think would be ideal if you could have it today, as opposed to what we have today? Numbers of divisions, let us start there.

Secretary BROWNLEE. Senator, first of all, let me just say how much I share your high regard for our Reserve component forces. They are serving with great distinction all over the world, and everywhere you go and talk to them, and the sacrifices they and their families are making, I just have to take a minute to mention—we all know Tom Brokaw wrote a book called, *The Greatest Generation*. There is another great generation out there now that deserves another book. Some of them—many of them are these Reserve component soldiers. But to directly address your question, sir, clearly the Army we have today, as Jack indicated, is deployed all over the world. Sometimes, I think every single soldier we have in the Army is on the move somewhere right now today.

So these commitments that we are meeting today are taking most of not just the combat power of the Army, but the combat support and service support parts of the Army to support these missions.

We are able to do what we are doing now today, but how long we can do it is a question.

Senator INHOFE. Yes. I think we need to talk about that, because if we had a 1989 deployment at that time of 261,000 or whatever it was, that used, as I recall about 53 percent of our deployable end strength. That same thing today would be 86 percent.

Secretary BROWNLEE. Yes.

Senator INHOFE. Then you get into the Reserve and the Guard component. I think every time we talk about how we are ready to—yes, we have the best Army in the world, we should be very honest and say, “We cannot sustain this state of readiness without some changes,” and then talk about this.

Secretary BROWNLEE. Well, it is pretty obvious, Senator, that the forces we have deployed now, we do not have—without going far more deeply into the Reserve components—a rotation base to rotate those forces.

Senator INHOFE. Yes.

Secretary BROWNLEE. Now if we made the decision to do that, we still have Reserve component units that we have not touched, but we would have to go much more deeply into those Reserve components to do that.

Senator INHOFE. Yes. Mr. Chairman, while there is not time to get into it, just so they can answer for the record, I have been concerned about the increase in the aviation accidents in all Services. There are some articles we read—I think—I do not know where it was—but a couple of days ago, and they talked about the high tempo of operations (OPTEMPO) in the Marines and the Navy. I have been over there and you have been over there we have all been there and have seen this. Perhaps it is a deficiency in maintenance. I would like to have your analysis of this maybe for the record insofar as the Army is concerned. Because Fort Drum reminded us yesterday that that is a very serious problem now.

General KEANE. Yes. We are very concerned about it ourselves.

Senator INHOFE. I know you are.

General KEANE. This year from last year, we have almost a 29 percent increase in our accident rate, and we have a—when you compare it to a 3-year average, it is up by 50 percent. So we are very concerned about it.

Senator INHOFE. Thank you. You can do that for the record. Thank you, Mr. Chairman. I am sorry I went over. [The information referred to follows:]

#### ARMY AVIATION ACCIDENT RATES

The rate and number of Army Class A aviation accidents in fiscal year 2003 was 28.6 percent higher for number (nine Class A aviation accidents in fiscal year 2003 versus seven in fiscal year 2002) and 28.5 percent higher for rate (2.108 versus 1.64 per 100,000 flight hours) than in the same period of fiscal year 2002. These rates were also 50 percent higher than the 3-year average for number of accidents and 42 percent higher than the 3-year average for accident rate. While these statistics are troubling, we are aware that they have been tabulated during a year when the Army is conducting around-the-clock combat operations in many areas of the world. Thus, a 3-year trend comparison may be inappropriate to help understand the real trends in these incidents. A more meaningful assessment may come from a comparison of Army fiscal year 2002 and 2003 aviation accident rates against those experienced during other intense Army operational periods (such as in 1989–1990 with Operation Just Cause and Operation Desert Storm/Shield). We do not yet have this basis of comparison, but plan to review relevant historical data and make this comparison as soon as possible.

Irrespective of aviation accident historical trends in appropriate context, we remain deeply concerned about the current rate of aircraft accidents and the associated loss of precious soldier lives. We continue to conduct extensive investigations of each accident to determine underlying causes and to establish workable approaches toward curbing these incidents.

Our review of fiscal year 2003 Army aviation accidents presently indicates that maintenance was not a primary factor. Instead, two common factors seem to have been at play: human error within the crew and environmental factors like intense dust and darkness. Individual human error has been determined as an underlying factor in 100 percent of the accidents for which a cause has been determined. Within this category, aircraft crew coordination breakdowns and incomplete crew duties account for 50 percent of these human errors. The environment has been determined as a factor in 62.5 percent of these aviation accidents, with 66 percent occurring at night.

Informed with these insights, the Army has been pushing lessons learned and recommendations for additional crew training and aviation soldier briefings to commanders in the field. We will continue to provide this kind of feedback to aviation field commanders and safety monitors as ongoing accident investigations are completed. We are also looking closely for all equipment modifications and updates that might prove helpful to limiting aviation accidents or limiting accident casualties. As we identify any of these equipment possibilities, we will aggressively pursue acquisition and fielding of them for use in the Army aviation community.

Senator SESSIONS. Thank you, Senator Inhofe, for your excellent series of questions.

The vote has started. Senator Bayh, why do we not do your questioning now? Then we will take a recess and come back.

Senator BAYH. Thank you, Mr. Chairman. I do not think my questions will take too long, but if they do, we can come on back.

Thank you, gentlemen, very much for your service to our country and for your courtesy in being here today. I appreciate it.

Secretary Brownlee, I have a couple of questions for you, and they relate to the changes you are trying to make to modernize the force going forward and so forth. My questions have to do with how we maintain the industrial base necessary to produce the next generation of vehicles, and maintain the current systems in place while we are cancelling these various systems. For example, I think the Abrams tank is in its last year of production. You have decided the M113 armored personnel carrier for not to go forward with the upgrade program. I am concerned that there might be a gap there. I mean, many of these companies who produce things like trans-

missions and other things, they are going to have to make a decision about just going out of the business.

Then we come back with the Army's Future Combat Systems, which are going to be good, but there is going to be a period of years where there is perhaps a gap.

How are we going to produce the next generation of vehicles if these companies get out of the business? How are we going to supply the current generation of vehicles, if they are not making spare parts and things like that?

Secretary BROWNLEE. Senator, you have hit on a key question that both General Keane and I talk about all the time. We are continually seeking ways to mitigate those things to get work into those plants that are most threatened by these cutbacks.

Clearly because we are not producing the numbers of M1 tanks or Bradley Fighting Vehicles as we once were in great numbers, there is a lot of excess capacity in that industry that is going to be taken down. Some of it is already taken down.

I mean, you go to some of these places now, and they are operating at 20 and 30 percent of what they were only a few years ago. So it is a very serious question, and related to that directly are the work forces that are trained and can do this kind of work, and we cannot afford to lose it all.

Then there is, of course, the design expertise that rests within some of those firms, and we recognize the critical importance of this, and that is why we have continually looked at upgrading National Guard equipment, as well as the active component, as seeking all the ways we can to get it to work, and get it into those places, as well as continuing to recapitalize and modernize what we have in ways that help them.

But as you all know, it is very difficult to do when you simply do not have the capacity or the resources to do that. You have hit on one of the things that troubles us the most. Because there will be in some of these segments of the industry very serious gap problems that are going to come.

Senator BAYH. The marketplace today is brutal. I mean, they demand that inefficiencies be eliminated immediately.

Secretary BROWNLEE. Yes.

Senator BAYH. So if there is a gap there of 2, 3 years, they are going to face no choice but to take out their capacity. Then what do we do? It is hard to ramp back up overnight.

So I am glad you focused on this problem. Part of our responsibility is to make sure you do have the resources necessary to, at least, keep the infrastructure in place so that when the new generation comes along, we are in a position to go with that.

General KEANE. Senator, I would like to add to what Les said. Where we are today is a little different than even the months prior, when we made this decision, when we discussed this with industry, because the effect the economy has had.

So we recognize that, and maintaining this great Army is a partnership, and we know that. We cannot do it without the support of American industry, and there are only certain companies out there that make the kind of things that we need. So it is in our interest to maintain that industrial base. We recognize it.

I think what we have in front of us is we have to work with our partners, because some of the things that have changed in just the last number of months, I know you have some information on and so do we.

They have made some recommendations to us, and we want to seriously look at all of that, see how we can mitigate the risk.

Senator BAYH. Gentlemen, I appreciate your attention to this issue, and I hope you will let us know what we can do to help you resolve it.

Secretary BROWNLEE. I wish I could tell you we have solved it all, sir. We have not. But we are working hard on it, especially in those critical areas where we can already see that there are problems that exist.

Senator BAYH. Mr. Chairman, if we had a witness who could tell us he had solved every problem, that would be a first in my experience, but it is certainly a standard to aspire to. Thank you, gentlemen.

Secretary BROWNLEE. Thank you.

Senator SESSIONS. Thank you, Senator Bayh.

Due to the vote, we will take a recess and be right back. [Recess.]

All right. Here we go. It is strange to go from voting on Roe versus Wade—I thought the Supreme Court had already settled that one, but we voted on it, as if somebody wanted to know what our sense was of it. [Laughter.] But here we are back at this matter, and that is just life in the Senate.

I would note for the record on this that we are having a budget today, and several questions related to the funding for the Department of Defense. I have been looking at the numbers, and in 1993, the defense budget was \$334 billion. In the mid-1990s, it had dropped to \$278 billion—not adjusted for inflation, as I recall. Those are actual numbers.

Then just last year we hit the \$330 billion level—the year before last maybe, the \$330 billion level. So we have really left the Defense Department with a real problem, and I think the real problem is that we should have been recapitalizing all along, a steady process of recapitalization over a long period of time. Then we would not be facing the bow wave of unmet needs, in addition to being in a conflict situation, and trying to deal with this with an economy that is hurting at the same time. So I think it is a good lesson to us.

Now, the President's budget calls for a solid increase this year, plus presumably we will be having a supplemental, and then about a \$20 billion a year increase for the next 4 years. If we sustain that, I think we can keep you on the level of transformation that we need to. If we come in, again, and start cutting that and not giving the Defense Department the funds it needs, then we are not going to be able to meet our requirements.

Let me run a few questions by you. I might submit some for the record, and I will see when any of our other members get back from the vote.

Now, I understand that the Department of Defense has asked the Army to evaluate the SBCT capabilities and to make recommendations regarding areas where the Army can improve the capabilities of the fifth and sixth Stryker Brigades. The report is



due July 2003. Can you provide some insights into what capabilities will be added, and do you see a need to increase organic aviation assets?

General KEANE. I will do it. Yes, sir. That is true. We have been asked to look at the fifth and sixth brigades, primarily in the area of intelligence, air defense, precision munitions, and also in terms of aviation. We have that under study right now, and we will be providing some feedback to Deputy Secretary of Defense Paul Wolfowitz on that issue.

I also want to use that to inform us and inform them as to potential changes in the first four brigades, if those changes merit that. We would go back and make adjustments to the first four brigades, so this—there are two parts to that. One is to take a look at five and six with some additional capabilities, and then also make some judgments about making those kind of improvements also to the first four brigades.

Senator SESSIONS. Can you share any, or do you think it is premature to share—

General KEANE. Right now, we think it is. Yes, sir.

Senator SESSIONS. Because of the \$1.7 billion increase in R&D costs, the Army restructured the Comanche helicopter program, the sixth restructuring in as many years. Last October, the Department approved the Comanche program restructure and an acquisition milestone of 650 aircraft, down from the 819 Comanches the Army said were required for an active component of the Objective Force.

The approved program does not reflect requirements for the Objective Force unit of employment currently being designed, nor does it reflect potential additions of Comanches to the Stryker Brigade Combat Teams. Because the authorization committee felt that the Comanche helicopter program required increased oversight, the 2003 Defense Authorization Bill required quarterly Comanche program updates to the defense committees.

Question, would you provide us with the progress the Army has made to date in the Comanche program and any emerging results from the unit of employment design effort?

General KEANE. Senator, yes, thank you for that question, because it is my belief that the Army finally came to grips with the Comanche program.

Everybody here who has looked at the record of that would agree that it has been a troubled program over the years. I think when the Army restructured the program, we literally doubled the amount of money in the development program and we extended the program out by 2 years and 9 months—I think exactly.

But the good thing is that we mitigated a lot of the risk in the program, and I believe the Army has now set the stage for a successful program here. We are certainly looking to the contractor to perform well in this regard, and we will be watching that very closely. But I think this time, thanks to the people on this committee who seem to have agreed with what we did with the program, it now appears to be on a far more sound footing. It is a much better program with much better chances of success.

But as I said, we are watching very closely the performance of the contractor and we are going to continue to do that.

Senator SESSIONS. It is an important program, and I hope things——

General KEANE. It has been a troubled program for years. We had restructured it before, and we moved money around to pay for other programs. One of them was the Crusader, ironically enough.

But Secretary Brownlee, one of the things that he did here so we could get a grip on that program, was to set up an independent review panel, headed up by former Chief of Staff of the Air Force, Larry Welch, and brought together a lot of other notables from a national security influence area, and looked very hard at the program.

We had a big question mark around the program, and they came in and helped us re-baseline and restructure it, and they thought it was a very transformational program. With the strategy that they had recommended to us, they thought it was a very viable program. That is where we are today. We have a lot of confidence in it.

We also had two contractors who were butting heads here, Boeing and Sikorsky. We had to fix the management oversight that they were providing to the program as well. I think we have done that by getting the attention of the leadership of both of those organizations.

Senator SESSIONS. Good.

Senator Clinton, we are glad to have you here, and if you are ready, I have been going on past my limit, so I would be glad to recognize you at this time.

Senator CLINTON. I would be happy to wait if you are not finished with your questions.

Senator SESSIONS. I just had a couple more questions.

Senator CLINTON. I would be happy to wait.

Senator SESSIONS. I will ask one more then.

The heavy counterattack corps remains the highest priority for Legacy Force recapitalization and selected modernization. However, the Army funded the Objective Force by reallocating funding from the counterattack corps, reducing the recapitalization and selected modernization program from three divisions and an armored cavalry regiment, as funded in the fiscal year 2003 budget request, to two only divisions.

With 48 program terminations and restructures, the Army has again taken risk in the current Legacy Force. Over the last several years, the subcommittee has asked the Army leadership how they would prioritize among Objective and Interim and Legacy Forces. With 77 program terminations and/or restructures in the Legacy Force, it is clear that you have set priorities and are willing to take risk in the current force.

What are the implications for reconnaissance and security missions of not modernizing the counterattack corps, armored cavalry regiment?

Please include in your response what you can plan to do to that unit to enable it to fight alongside the division in the corps. How much would it cost to modernize the ACR?

General KEANE. Okay. As we have said before, Mr. Chairman, that was a very difficult decision for us. The most difficult one I have dealt with in the last 4 years and very challenging.

We think the risk is acceptable to begin with. Also if we had more money, we would put it right back into those programs as a top priority; first with the Third ACR, and then with the Third Infantry Division.

The Third Infantry Division's recapitalization program was not going to take place until 2007 in any event. So there are still some things that we could do with that division if we are able to generate more financial support between now and then.

Then in terms of how it would fight, all of the organizations in the Army would be digitized. By that, I mean, they would have similar situational awareness and they would be able to talk to one another, even though the basic tank may be a little different, or the fighting vehicle itself is not as modernized as another one.

We are digitizing the entire III Corps, so that there is commonality there in terms of the situational awareness they have of where they are and also the information we are going to provide to them in terms of where the enemy is.

We know we have to have that kind of commonality. If we did not establish that, then we would have a problem. The fact that they are operating side by side with another division—

Senator SESSIONS. I understood that was not going to be one of the problems of modernization.

General KEANE. That will not be a problem.

Senator SESSIONS. You can solve that.

General KEANE. We have solved that problem. We have kept those funds to make certain that that happens. The fact that one division will have a more modern tank than another division will not cause us a problem in terms of those organizations working together.

Senator SESSIONS. Thank you.

Senator Clinton.

Senator CLINTON. Thank you very much, Mr. Chairman.

First, I want to thank the Secretary and the General for being here to give us this update. I particularly want to extend publicly my regret and sympathy about the crash of the Black Hawk yesterday up at Fort Drum.

I have had the opportunity to speak to General Hagenbeck, and I know how difficult this is for everyone involved directly or indirectly. It is a great loss for us with these young soldiers getting trained, and I certainly extend my sympathy as well to the families.

I hope that we are able to continue this conversation about transformation as it goes forward, because just listening to the few questions I heard from the Chairman, this is such a huge undertaking, and it is such a dramatic departure from traditional or legacy understanding of what the mission has been and how to fulfill it.

It is the case that I am sure there will be lots of fits and starts along the way, but I am committed to ensuring that the Army continues to play the central role that it always has in our military, because I do not see any other way to create an effective fighting force without the Army being right at the center.

So while we are transforming, we do not want to lose sight or undercut the capacity to provide the forces and resources that are needed for every kind of mission. Now, with that in mind, I am in-

terested in the—this may have been asked to some extent before I came—the budget increases for the Interim Combat Systems, including the Stryker Brigades and the FCS, and the way that we have cut the amounts spent on the Legacy Force. In your written testimony, you express your beliefs that in May, the Future Combat System will meet its Milestone B deadline, and therefore will transition the FCS program from concept and technology development into systems development and demonstration.

What would be the consequences to the budget if the FCS does not meet its Milestone B deadline, and how soon would we know that? Would we have time to take appropriate actions within the budgetary framework to be able to continue the work that you are doing? Mr. Secretary.

Secretary BROWNLEE. We would know in May, ma'am, if it did not make the Milestone B deadline.

Senator CLINTON. That is a firm deadline in your opinion?

Secretary BROWNLEE. It is a firm deadline as far as that milestone. I should add, because this is a different kind of procurement or procurement acquisition strategy that we have developed for this, as you have described so well, this very complex and huge undertaking that we have, it is a system of systems. It is right now 24 different requests for proposals with 19 for the FCS and other related ones, and trying to bring all those together in a way that will create this kind of new force with very new and distinct capabilities.

It would have impact on the budget, but probably not to the degree in the near term that it might, because we would still be using developmental funds if we were—if this was a milestone where we were going from development into procurement, then yes, we would have the problem we face so often of having to transition or convert procurement funds back into R&D or something like that.

But the reason I wanted to describe the difference is because I think people going into this very important milestone decision also have to recognize that we have to look at this differently. Some of the things we are doing, using elite system integrator as a very important part of this strategy is different for the Army. Outside of the missile defense area, it is different for everyone.

So it is just a different thing, and we are going to have to all recognize that. Going from concept development to systems development is a very important step, but in my mind, it is more important about what it says about Milestone C.

If we do not make Milestone B, what does that say about the next one, which would be in 2006.

Senator CLINTON. Yes.

Secretary BROWNLEE. So I do not think it is a catastrophe if we do not make it. While some of us might have been pretty worried a few months ago about our ability to make it, some of the things that have happened recently are very encouraging.

I mentioned earlier the evaluation of the critical technologies that we have identified. We started off looking at about 3,000 and gradually narrowed it down to a list of 31 that are considered critical. Those have all met or nearly met the technology readiness levels that they should have in order to proceed.

We also—to help assure ourselves—asked an independent group to come in and evaluate those. They also gave a very encouraging report about that.

So, yes, it would be greatly disappointing not to make that milestone. I do not think it is catastrophic, because this is a very ambitious schedule, and I think everybody has to recognize that.

I have asked myself is it too ambitious? Then the question comes back, we are taking money out of the current force in order to fund this very ambitious program, and there is a lot of money we are putting into R&D. There is \$13.5 billion worth of R&D in this plan, this 5-year plan or 6-year plan it is.

Senator CLINTON. Yes.

Secretary BROWNLEE. So, yes, it would be disappointing. I do not think it would be devastating. I think we could still proceed. When I ask myself what is the alternative, the alternative is to have a less ambitious schedule, and we have opted not to do that.

Senator CLINTON. I really appreciate that explanation. I do not know that that is the alternative, I guess, is the point of my question. I think we are falling into a lot of either/or thinking around here, not just with respect on this specific issue but on a range of other concerns as well.

So I am hoping that the drive for transformation does not blind us to the need to continue to support the existing force, and to ensure that for the next 4 to 6 years, or however long this process is, that we are not hollowing out what we currently have in order to try to meet deadlines and pursue some worthy goals that I think we agree with. It should not be an either/or approach. I think many of us will watch that and work with you.

Secretary BROWNLEE. Yes, ma'am.

Senator CLINTON. Has the procurement system undergone a similar transformational initiative?

Secretary BROWNLEE. It is in the process of undergoing something similar and as I said the acquisition strategy that we have adopted for this is new and different for the Army.

Senator CLINTON. What kinds of conflicts of interest proposals are you putting in place with respect to all of these contracts that are being undertaken?

We are embarking on an enormous undertaking that involves multiple billions of dollars, and some recent news reports have been highly concerning to me about what, if any, conflicts of interests and other kinds of rules are in place as to who bids on contracts, who has information, and who does not have information, and I would like additional detail about what it is we are doing to safeguard anyone taking advantage of these situations by virtue of being insiders or in any other way undermining the transparency insofar as possible of the procurement and bidding and contracting process.

Secretary BROWNLEE. I share your concern, and I have voiced that several times. I think we have to continually work those issues.

We have put in place around the Lead Systems Integrator certain firewalls that we believe will protect against the kinds of things you mention.

I cannot tell you that in my mind right now I am totally assured they are all foolproof, but we are looking at it very closely.

In order to make this work, the Lead Systems Integrator has to have some authority within the source selection process, but one of the things that I insisted on when I came there a year ago was that the Army acquisition authority always had the final word.

Senator CLINTON. I appreciate that, Mr. Secretary. I know you have a distinguished career on this side of the Government as well and I would appreciate your conveying the concerns many of us on this committee have that in our efforts to discharge our public responsibilities, we are not able to obtain information in direct question and answer sessions with officials from the Pentagon; whereas it appears the contractors are.

Secretary BROWNLEE. Yes.

Senator CLINTON. I find that somewhat disturbing. When, in a comparable hearing, we asked repeatedly—in fact, the Chairman was there—Secretary Feith and others, “What is happening? When is it happening? How much it is going to cost?” We were told it was unknowable.

Then we pick up the newspaper and find out the contracts are being let for the unknowable. I am not making any judgment about the substance of the contract or the persons or institutions to whom it was awarded, but we have an obligation here in the Senate and on the other side of the Hill to be kept informed about these matters.

Ultimately, we are the ones who have to appropriate the money and answer to the taxpayers.

Secretary BROWNLEE. Yes, ma’am.

Senator CLINTON. General Keane, I am very concerned also about what you might call the manufacturing base of the Legacy Army. We have Watervliet in New York. I visited the arsenal last week.

It is troubling to me that we might lose the capacity as we have in other areas of necessary equipment to not only private contractors, but offshore or Government contractors. Certainly when you look at the Watervliet arsenal and the fact that it is the only remaining Army manufacturing facility making cannon and howitzer tubes and the like, it is a cautionary note that we do not want to give up the ability to quickly turn out heavy equipment even if we are transforming, because I still believe, and I may be at a minority, that you have to hold ground and you may need heavy equipment to help you do that.

Do you have any comments about the need for continuing that kind of manufacturing within the Army itself as opposed to contracting it out?

General KEANE. Yes. Thanks for the question, Senator. I appreciate your condolences for our soldiers and their family members and also we really appreciate the interest that you have shown in Fort Drum and the number of times that you have been up there around family members. I thank you for all of that and your continued support of our Army.

You put your finger right on that issue. It is the only place truly in America that does that kind of work, so it is of great value to the Army.

Our problem is we have a work capacity problem there, in terms of the amount of production and work that we are providing to that institution. But there is a lot of work coming in the future with NLOS cannon, which will be the new artillery system for the Army after the cancellation of the Crusader program.

So we are optimistic. Obviously like every other program it will get reviewed by the BRAC Commission, and judgments will be made about it. But it is the only one of its kind in America. So we have a lot of confidence in what it has done for us.

Senator CLINTON. I appreciate that and I would hope that you and the Secretary and the Chairman or others might possibly come up and visit there, because I remember very well when the U.S.S. *Cole* was attacked and that terrible gaping hole was blown into the hull, and there was, at that time, only one place left in the entire United States where you could get armored steel. That was Bethlehem Steel, which has since, of course, gone into bankruptcy.

As we are looking at transformation, I think we do not want to be reliant on Chinese steel companies or Russian steel companies, or anybody else in the world for the kind of nuts and bolts equipment that is absolutely needed. Whether you are transformational or non-transformational, you have to produce some of that heavy-duty equipment. So I think that is going to be an issue for us.

Thank you, Mr. Chairman.

Senator SESSIONS. Thank you. You raise a very important point. The Barry amendment, we have some problems with that. I think the Defense Department is back on track about that.

But it is true that steel is a good example. It is a security issue. The total collapse of the steel industry in America does leave us vulnerable strategically, I think, at least in the economic pain from it.

General Keane, I would just like to say we have been talking about transformation and we have been pushing the Defense Department to do that. Most large organizations are bureaucratic and slow to change. Maybe ours is too, but I want to say without any doubt that our military is more open to change, more willing to change, more focused on the future than, I am sure, any in the world.

You talk about the Operation Anaconda review, the honesty that was there and the commitment to figure out how we can do it better in the future without worrying about our parochial interests, I think, is a good commentary. We need to keep that and keep this momentum going and hopefully we can achieve the goals that we would like to achieve. Do you generally feel optimistic? You have worn the uniform a long time.

General KEANE. Yes, I am, and most people focus on the platforms that we are changing, and many of the leaders in the Army do. We cannot help ourselves. We are a platform-centric organization, more ground platforms than air platforms get a focus in the Army. At times, wrongly so, to be honest with you.

But the real change in transformation is a cultural change, and it occurs in people's heads. That is where the challenge has been. When you move in any large organization and—most people think because we have all this rank and we are somewhat of an auto-

cratic institution, by issuing orders we will create positive change. Nothing could be further from the truth.

We have to have an idea, and we have to be persuasive with that idea. It has to be moving to people in our Army to get them to willingly commit to change. If you do not get them to commit willingly to it, to believe in it, it is not going where you think it is. Despite the rank that we have and the orders that we can give, in this bureaucracy that we have—and at times it is that—it can slow and stop good ideas from taking place if they are not convincing and persuasive.

So our challenge has always been cultural. We are trying to change an Army that has fought one way to fight a different way. We have to be convincing. I mean, it has been a journey, and it has been a struggle.

At the beginning, it was very hard. We have made some progress, but we are not completely there yet. It will take more energy and more conviction to get us there.

Senator SESSIONS. It has been incredible to me the efforts and success in which the air and the ground have worked together.

General KEANE. Yes.

Senator SESSIONS. Where you have the Air Force and sergeants on the ground working together effectively to direct firepower exactly where it needs to go.

I know Senator Lieberman had asked you about Operation Anaconda, and I guess those were some of those same type issues, how you coordinate effectively; but it seems to me you are doing very well at that.

Would you comment on where you are and what your hopes are for the future?

General KEANE. Specifically dealing with air/ground support, what we learned from Operation Anaconda and the commanders who were there, both in the air and on the ground—we have spent considerable effort these last months fixing that. We think we have done that.

It is not just fixing the procedures and some of the technology. We have to also talk to our youngsters about it. The Vice Chief of the Air Force and I both attended his command and staff college and his war college. We both got up on the stage and we openly talked to them about the problems we had and what we are doing about it, because the youngsters out there who were doing this have to believe as well that we have fixed those issues. We do not want them going into battle, whether they are in the air or on the ground, thinking that the Army and the Air Force are not going to work effectively together.

We do not want any doubt in anybody's mind that the Air Force is going to be there for Army soldiers when they are in trouble. We know that the Air Force will be there for us. Now, we do not want any pilot thinking that somehow procedurally the Army is not going to be able to communicate with him effectively to help those soldiers that are in need. So we think we fixed it.

Senator SESSIONS. I know in Afghanistan, that has been stated as the biggest change, where you actually had ground combat special forces directing air munitions.



How far are we from having the normal Army combat unit having those same capabilities? Is that only special forces or is that throughout the Army that we have the systems in place to do that?

General KEANE. Now, that is a great question. When you look at warfare, one of the things that is occurring to us and that is exploding is the ability to integrate our joint warfighting capability in ways that we have not in the past. The integration we used to achieve was normally at field commander level, where you would find a three- or a four-star flag officer. We achieved some operational integration at his level.

What is happening now, because of the explosion of technology, our ability to have a common read of the battlefield from the air as well as the ground, is that everybody is looking at the same thing at the same time, and we have the capacity to truly communicate effectively with each other very rapidly, so we have a common situational awareness of our own forces as well as the enemy's forces.

What that is enabling us to do is move down the vertical access of warfare and empower people at lower levels with the capacity to integrate the combat power across service lines in a way that was not imaginable even 10 years ago.

In Operation Desert Storm, when we went there in 1991, if we are honest with ourselves, what we really did is all the Services were there, but we sort of de-conflicted our operations and stayed out of each other's way. When we look back at it in the cold reality of the day, as successful as that operation was—and it was very successful. It was magnificent as the sailors, soldiers, airmen, and marines performed, and it was that when we look at it procedurally, we could have done much better.

We have been working very hard on that the last 10 or 12 years to achieve better integration. We are not completely there, but if we are asked to do something in Iraq, I think you will see there will be some profound differences along the lines that I have discussed.

The people at lower levels will be integrating combat capability across service lines in a way that we have not in the past. You saw some of that when I gave you the illustration of special forces teams in Afghanistan controlling the air power of all of our strike aircraft. Young sergeants who were broken up into groups of threes and fours doing that because they had the right communications, they had the right technology to fix the GPS-guided munitions and to deliver it very accurately. So that is profound change for us.

Senator SESSIONS. It certainly is. That is also the next question, which is probably a subject for another discussion or maybe a closed briefing. Are we there enough, and is that transformation recognizing that incredible technological advancement sufficiently?

General KEANE. It is the technological change that is enabling us to move towards a transformational way, at least for a land force to fight.

What we have done historically, for 100 years, is we have always fought principally the same way, we have gathered ourselves in very large formations. We call them divisions. If you looked at it, it has been a rectangular box. We put them together in threes or

fours, and you had a guy like me, a three- or four-star general, and put him in charge of them.

He would move into a country on an axis with those divisions, and very methodically would control terrain, overmatch an adversary, and control the population. Maybe we would be moving on two or three axes.

As the latter part of the 20th century arrived, because of the kind of technology and the better systems we had, we were able to make more dramatic moves with those formations. But the formations inherently stayed the same. They were in those massive formations, because there was a hedge against the uncertainty of what an enemy was going to do.

We always had that degree of uncertainty. In the first part of the 20th century, we could not even see over the hills, so we sent guys over the hill to find out what was going on. At the latter part, we started to see with satellites and we started to integrate air power so we could see better, and those formations loosened up. You saw what Norm Schwarzkopf did in Operation Desert Storm when he made that big sweep, but the way of fighting really did not change. It was principally the same.

The technological change that is occurring is that now we have what I would describe as an unblinking eye over that battlefield, where you can truly see where an enemy is and what they are doing. The terrain between you and the enemy is less important to us than what it has been in the past.

So if you accept that, if you accept that premise and you believe it, then you can introduce forces dramatically different as opposed to moving on an axis like this, and you can send them to places at the same time to defeat what is there, or to take control, to seize what you are interested in, a capital city, an air field where there is an enemy formation, highways or railroads that you want to seize, so the enemy does not use it.

You can do this in six, seven, eight, nine places, and I will call it just drawing circles around the places you are interested in, discard the long axis, and you go to those places much more rapidly than we do today. In days and weeks, you can defeat an adversary, because you will force him to implode on himself.

That is different. Technology is enabling us to do that. I think what we are doing is recognizing that technology is there.

So these formations that we will have in the future will be much smaller, and we will not be intimidated by the fact that we are fighting an adversary that is larger, because while they may have a larger Army force than we do, we will be integrating all of the joint fires at a much lower level than we do today, and be able to address that adversary in ways that we can see today, but we cannot completely do today.

We think that is pretty transformational, because it is really changing how an army fights and we have not made as dramatic a change like this in 100 years, when you really get down to it.

Senator SESSIONS. I think that is pretty transformational. I agree. That is a marvelous explanation of where we are headed. Thank you very much.

Senator CLINTON. Mr. Chairman, if I could, I would like to follow up on what the general just said. I can understand and visualize

the description that you just gave us, until you came to the words "capital city." What I need to understand is what transformational concept guides our thinking with respect to urban warfare.

General KEANE. Yes, that is a great question.

Senator CLINTON. Because, when you think about Schwarzkopf making a sweep, or you think about Afghanistan, you have different kinds of topography, but it is basically an unpopulated, large expanse in which to operate.

I am confident that we can be successful anywhere, but I am just having a hard time understanding a kind of heavily urban area that if I were a determined adversary, I would use to embed my forces and I would require us to undertake actions that would inevitably result in very large civilian casualties, and which under the circumstances would not be immediately successful, just by the very nature of the environment in which we found ourselves.

So how does the transformational philosophy go along with what I view as a very serious continuing threat with respect to our ability to take on whatever comes our way?

General KEANE. Yes, Senator, that is a great question. It is one that has challenged us intellectually for a number of years.

What we have been doing, for the last 10 to 15 years, is drawing circles around these major cities and convincing ourselves we were going to bypass them. Most of our operational plans called for all of that, to include the ones in Operation Desert Storm.

The reality is our adversaries are very much aware of that. You saw what Milosevic did, relatively successfully in Kosovo. He had a 40,000-man force. We put no ground forces into Kosovo and he was rather successfully able to hide that and shield that force from a 78-day air war. He did that in population centers and also hiding the forces in villages and using some camouflage techniques from us.

So that technique is well known by our adversaries, and we have had to change. We have the capacity to do it. It takes some craftsmanship. I do not dispute that. It takes some generalship to do it. We would go into a major city with the values of the American people with us, with the intent that clearly we are not going to harm people unnecessarily.

If the adversary is crafty, he would hold that population in residence. He would not let it go. One of the things that we would have to do is attempt to separate the military targets as best we could from the population. We have to control the population. We have to make some pretty interesting decisions early on.

Is one radio and television? We have to take control of radio and television so we can talk to that population, and have the appropriate people talk to them in terms of what our intentions are. Even while the adversary is there, we have to have the capacity to take the TV and radio stations away from them and talk to that population.

We do not necessarily have to use his. We can shut down his and use our own to do that sort of work. Talking to the people themselves is a major issue for us, and we would not want them to leave. We want them to stay in their homes and know we are not there to harm them.

We may actually have to segment that population, so we do not want it moving around. An adversary like Saddam Hussein can probably get 20,000 people to participate in an event, just by calling for it.

Well, if we are segmenting that population, barricading it, blocking it, and we are doing that within the American value, they see and feel the strength of our forces there, that we are not going to let them move and participate in an event like that, which will be covered by CNN and would result probably in the loss of innocent lives. We are not going to let that happen.

So controlling the population is critical to do that. We have to have presence to do that. We also have to have a means of communicating to the people to be able to do that.

The second thing is we have to deal with military targets, and we would use air as well as ground forces to do that, and we would do that very surgically. That is an often-used word. What I am saying is it would not necessarily need a lot of force or a lot of presence to do that.

We would probably use some special operations forces to do it, as well as we would use air power with GPS-guided munitions to do that sort of work. We would obviously have to know that that is a bona fide target and know what it is and make our judgments about it, just as obviously we would have to do in this upcoming war.

So the technology is enabling us to see better. We are developing UAVs to use in cities that we can move down alleyways, over buildings and we can watch and see. We are going to have multiple UAVs to do this, as part of our Objective Force, we need those sensors to have this unblinking eye in a city, so that we know what is happening.

If we can see it and understand, then we can make the appropriate decisions. We would never do what the Russians did in Chechnya. We would not do that.

Even the problems that the Israelis were facing in Jenin. They had a significant challenge that they were facing there, and they found that all the roads and alleys were booby-trapped and mined, and they had to go through the buildings as the avenue of approach. In other words, they took bulldozers and moved through the buildings and did it that way.

We would hope that our technology in the future would give us the opportunity to avoid doing that kind of work, but it was a challenge that they were facing certainly. They did the best they could with that challenge.

So you are right, Senator. I mean, it is a long response. It is challenging work for us, and I think we put a lot of intellectual energy into it. We have the values of the American people that are in our soldiers, and that is the way we operate. I think we can do it without undue harm to the people.

We have to have that capability. If we do not, then our adversaries will just use the people as a shield and try to get the best political deal they can out of a stalemate. In many cases, that would probably be unacceptable to us.

Senator SESSIONS. That was most interesting. It becomes more difficult as the adversary is fiercely dedicated to resistance. The de-

gree at which that notches down, the lesser degree of loyalty to their existing government, I think, is a factor in all of this too. If they will operate like the North Vietnamese did in small groups far away from a command center, you have a more difficult problem than if they have to be kept together.

We are just appreciative of your leadership. I will submit a question about our pre-positioned material. I understand that some of the equipment that we had pre-positioned was not as modern as we would like it to be, and that some units who were actually training on it and had to down-train to be able to utilize the older equipment. So it would be something that I will submit in writing.

Is there anything else, Senator Clinton, you have?

Senator CLINTON. No, thank you.

Senator SESSIONS. Thank you very much. It was an excellent hearing and we look forward to working with you as time goes by.

General KEANE. Thank you.

Secretary BROWNLEE. Thank you.

Senator SESSIONS. We are adjourned.

[Questions for the record with answers supplied follow:]

#### QUESTIONS SUBMITTED BY SENATOR JEFF SESSIONS

##### PRIORITIES

1, 2. Senator SESSIONS. Secretary Brownlee, we look to the Army's unfunded requirements (UFR) list when we consider opportunities for increasing the Army's modernization budget. Unfortunately, it is often difficult to understand Army priorities as reflected in that UFR list. For example, while the Army has terminated so many programs related to the modernization of the Counterattack Corps, it has included an \$88 million unfunded requirement for two battalions of Paladin howitzers for a National Guard Strategic Reserve division. Does this accurately reflect Army priorities? Where should we look to help the Army should we find additional resources?

Secretary BROWNLEE. The Army's top priorities are funded in the President's budget submission. While we would have liked to have funded all of our requirements, we took prudent risk in some areas. Our top five shortfalls reflect those areas where we have taken the most risk, and if additional funding were available, we would apply them to these areas first. Our number one shortfall is active duty pay and allowances. This shortage is due to an unforeseeable short-term change in the mix of officer and enlisted soldiers. Number two is in chemical weapon stockpile and material storage/demilitarization site security. The additional funding allows us to enhance security around chemical weapons storage and demilitarization. Number three is anti-terrorism/force protection funding for security guards and equipment on military installations. Number four is for ammunition and helps fund training ammunition and replacement of expended war and operations ammunition. The last item in our top five is Flight School XXI, enabling us to better and more rapidly train our helicopter pilots.

Regarding Paladin howitzers, the Army National Guard (ARNG) has a critical requirement to modernize their heavy division self-propelled howitzer systems from M109A5 to M109A6 Paladins. The required \$88 million will support the ARNG request for two battalion sets consisting of 36 M109A6 Paladins to modernize two direct support 155SP artillery battalions in the 49th Armor Division (Texas ARNG). The Paladin howitzer provides essential improvements in survivability and responsiveness through a self-locating capability. Most importantly, Paladin provides a digitized system that is mandatory on today's battlefield. The 49th Armor Division, due to its alignment with III Corps, is a high-priority unit in support of the counter-attack mission.

##### OBJECTIVE FORCE

3. Senator SESSIONS. Secretary Brownlee and/or General Keane, fiscal years 2003 and 2004 are critical times for Army transformation. In partnership with the Defense Advanced Research Projects Agency (DARPA), the Army has focused its

science and technology (S&T) funding on identifying technologies which can be quickly developed into combat capabilities. Over the past 3 years, the Army has dedicated over 95 percent of its S&T funding to the Objective Force program. I understand that towards the end of May, the Army and DARPA will be evaluating these technologies as you conduct a Future Combat Systems (FCS) Milestone B review to determine which technologies will be ready to enter into System Development and Demonstration (SDD). What else can be done to mitigate risk in the FCS program? If, for some unknown reason, the FCS SDD is delayed, what alternatives do you have?

Secretary BROWNLEE and General KEANE. Risk mitigation within the family of systems that comprise FCS is addressed using both technology alternatives for sub-systems and capability alternatives to elements of the FCS family of systems. The FCS program manager commissioned an assessment to identify the critical technologies required to achieve the first FCS capability increment. The assessment, endorsed by the Deputy Under Secretary of Defense (Science and Technology), determined the technical maturity, the degree of criticality of the technology to FCS, and the requirement for risk mitigation plan in the event the technology did not mature as required. The Army subsequently developed risk management plans for all of the medium- and high-risk critical technologies. Any significant delay in FCS SDD would require the Army to revisit plans for legacy system recapitalization and modernization to keep those systems in use for longer periods of time.

#### EXPERIMENTATION

4. Senator SESSIONS. Secretary Brownlee and/or General Keane, Section 215 of the National Defense Authorization Act for Fiscal Year 2003 directed the Army to provide a report on the experimentation program regarding the design of the Objective Force. Please describe the experimentation plan for the Objective Force, the role of the SBCT in informing that experimentation, and the cost of that experimentation for fiscal year 2004 and the FYDP.

Secretary BROWNLEE and General KEANE. The report required by the Fiscal Year 2003 National Defense Authorization Act is currently under review and expected to be approved for distribution in the near future. Present Army experimentation planning, the first to truly focus on the Objective Force, will support Office of the Secretary of Defense guidance to transform America's national security institutions. The plan establishes processes, responsibilities, and procedures to implement aggressive, innovative concept development and experimentation. The plan also reduces risk and integrates Army concept development and experimentation into a coherent service/joint context to provide combatant commanders with sustained land combat capabilities. The plan informs the Army leadership vision and concept for the Objective Force and commits the Army to a transformation path to achieve Objective Force capabilities in 2010 and field operational SBCTs while maintaining the current force as a strategic hedge.

The SBCTs will be incorporated into Objective Force experiments to the extent practicable in order to ensure Objective Force unit of action/unit of employment development. These experiments also will serve as an important link in developing requirements for the Objective Force.

Experimentation, including that necessary for the battle laboratories, is funded at \$112 million for fiscal year 2004 and \$772.6 million across the FYDP.

5. Senator SESSIONS. Secretary Brownlee and/or General Keane, what role did experimentation play, if any, in the design of the Objective Force unit of action?

Secretary BROWNLEE. Experimentation played a key role in the development of the operational and organizational concepts that ultimately led to the design of the Objective Force unit of action. Experimentation took the form of Army seminar war games and battle lab concept experimentation program experiments, joint and sister services battle lab experiments, and other Government agencies' experiments and technology demonstrations.

Seminar war games led by the U.S. Army Training and Doctrine Command permitted Army senior leaders to model and examine capabilities envisioned for the Objective Force within an operational scenario. Insight gained from these war games facilitated the definition of the unit of action and unit of employment operational and organizational concepts. Experimentation validated and refined concepts; provided insights for metrics to incorporate in operational requirements documents; assessed impacts of FCS on tactical operations; examined the influence of future tactical and technical capabilities; and explored the potential effects on commanders, staffs, and military operations. Experimentation also provided insights

into future information requirements, development of tactics, techniques, and procedures and early insights into the warfighting capabilities derived from advanced technologies.

6. Senator SESSIONS. Secretary Brownlee and/or General Keane, what experimentation is being conducted with respect to the division- and corps-level unit of employment? When will that design be completed?

Secretary BROWNLEE and General KEANE. Army Transformation War Games 2001 and 2002 examined echelons of command. During Unified Quest 2003, the Army will examine alternatives to current echelons of command above brigade level. Unified Quest 2003 will focus on the possibility of reducing the number of command echelons, and will explore the impact of headquarters designed to provide joint and operational command and control using an advanced battle command system. The exercise will allow the Army to look at alternative command design constructs using emerging joint concepts and within the framework of major combat operations.

Insights obtained from this 2003 Army Transformation War Game will shape forthcoming decisions on the number of echelons the Army will design as well as identify their functions. We anticipate that the initial design of the Objective Force units of employment, along with a more detailed operational concept for these units, will be completed in the first quarter of fiscal year 2004.

7. Senator SESSIONS. Secretary Brownlee and/or General Keane, how was/is the SBCT formally linked to that experimentation?

Secretary BROWNLEE. Objective Force 'excursions' will be executed during SBCT exercises. As the Army proceeds with development and fielding of the two SBCTs at Fort Lewis, lessons learned in SBCT exercises and evaluations will inform Objective Force concept development and experimentation.

Recently the Joint Forces Command conducted its first major experiment, Millennium Challenge 2002, with the embedded Army experiment—Army Transformation experiment 2002. Insights from SBCT participation in Millennium Challenge 2002 and future joint experimentation will inform Objective Force concept development and experimentation.

#### BASIC RESEARCH

8. Senator SESSIONS. Secretary Brownlee and/or General Keane, your testimony mentions the role that science and technology play in the development of the Objective Force. What role does "6.1" or basic research mostly performed at universities play in that plan? Will investments in this fundamental research suffer as you seek to accelerate transformation and focus on near-term technology issues?

Secretary BROWNLEE. The goal of university research funded by Army S&T is to provide new capabilities beyond those that are currently in development for the Objective Force. We have a multifaceted strategy that takes advantage of the best and brightest minds in our universities and develops state-of-the-art infrastructure necessary to conduct basic research. The single investigator program identifies and leverages the most significant research being done at universities in support of the Army mission. University Affiliated Research Centers (UARC) perform research in areas that we believe will provide paradigm-shifting capabilities in support of the Objective Force. As an example, the Institute for Soldier Nanotechnologies UARC is focused on leveraging and exploiting advancements in nanotechnology to provide revolutionary capabilities in soldier protection.

University Centers of Excellence focus the basic research program on enduring needs, such as rotorcraft and automotive technology, in order to assure that the U.S. Army maintains our 'overmatch' of capability in these areas. The Army's Multidisciplinary University Research Initiatives program, devolved from OSD in fiscal year 2004, funds university centers to investigate multidisciplinary, far-term transformational topics critical to maintaining U.S. land combat technology superiority. The Defense University Research Instrumentation Program, also devolved from OSD in fiscal year 2004, builds and maintains the infrastructure needed to improve the quality of defense research performed at universities. The program fulfills its objective by supplying funds for university purchase of state-of-the-art instrumentation capable of meeting current and future research challenges.

As reflected in our past four budgets, Army investment in university programs has not been skewed by the acceleration of transformation of near-term technology. We continue to sustain a balanced portfolio of investment in basic research efforts for near-, mid-, and far-term science and technology excellence.

## MANUFACTURING AND INDUSTRIAL BASE

9. Senator SESSIONS. Secretary Brownlee and/or General Keane, what investments are you making to ensure that the Nation's industrial base can support the needs of the Objective Force in the future?

Secretary BROWNLEE and General KEANE. The preponderance of the Army's investments is currently directed toward those technologies that hold the greatest promise for achieving the Army's transformation goals. The Future Combat Systems Program Office and the Lead Systems Integrator are developing a list of those technologies critical to the Objective Force. The Army's strategy is to aggressively partner with the commercial sector in developing dual-use technologies and to leverage funding from multiple program managers to address a few specific manufacturing technology objectives that promise maximum overall impact for both new and legacy systems. Ongoing technology assessments and investments will form the basis for future decisions on the technologies that will ultimately be incorporated into the weapons and support systems of the Objective Force. Those assessments will also provide focus for the manufacturing technologies that will be required within the industrial base to produce and support the Objective Force.

10. Senator SESSIONS. Secretary Brownlee and/or General Keane, how are you developing the manufacturing technologies needed to produce the unmanned vehicles, computer networks, and advanced sensors and electronics that are an integral part of the force?

Secretary BROWNLEE and General KEANE. The Army conducted a special study in fiscal year 2000 through the National Center for Advanced Technologies to identify the requirements from manufacturing technologies for the Future Combat Systems and the Objective Force. The blue ribbon panel identified funding priorities for specific topic areas and priorities—including the areas you have listed in this question. The Army's manufacturing technology effort has been increased over 50 percent from fiscal year 2001 to fiscal year 2004, and will be over 100 percent higher by fiscal year 2009. We view manufacturing technology as a critical element in the delivery of the right technology at the right time and at the right price.

## FUTURE OF LABS AND RESEARCH DEVELOPMENT ENGINEERING CENTERS

11. Senator SESSIONS. Secretary Brownlee and/or General Keane, traditionally, the Army laboratories and Research Development Engineering Centers (RDEC) have played an important role in developing new technologies and translating Army requirements into R&D programs. What role do these facilities play in the Army's development of the Objective Force?

Secretary BROWNLEE and General KEANE. The Army labs and RDECs continue even more strongly in this role. The Army Materiel Command (AMC), which is the primary developer of Army warfighting materiel, is undergoing major internal changes to respond to Army transformation. The formation of the Research, Development, and Engineering Command is part of the response to bring about Army transformation. This will enable AMC to respond more efficiently to the system of systems challenge of the FCS and the Objective Force by unifying multiple labs and RDECs into one organization.

12. Senator SESSIONS. Secretary Brownlee and/or General Keane, in light of the need to restructure the Army for transformation, are there specific areas that should have more or less emphasis in the S&T and R&D infrastructure?

Secretary BROWNLEE. Since 1999, Army transformation has been driven by S&T investments to bring forth new technologies that are addressing the goals of a lighter, more lethal force. Over 98 percent of S&T investments are currently aligned with the Objective Force. In terms of restructuring, the system of systems challenge of FCS and the Objective Force has already resulted in the development of the Research, Development, and Engineering Command. Since 70 percent of the S&T program is executed by AMC, this response to the challenge has been both dramatic and appropriate, moving away from the stovepipe mentality of developing the "eaches" of the past to the integrated requirements of the future. This restructuring will better enable the Army to develop and effectively exploit the system of systems aspects of the Objective Force.



## WORKFORCE

13. Senator SESSIONS. Secretary Brownlee and/or General Keane, Congress has provided the Army with a number of personnel flexibilities in order to meet their need for highly trained scientists and engineers to support technology development programs. Specifically, Congress has tried to provide Army lab RDEC directors with maximum flexibility to recruit and retain the appropriate workforce to meet their specific missions. Does the current personnel system adequately address the specific needs of your individual lab directors?

Secretary BROWNLEE and General KEANE. No. While the laboratories have made significant progress while using the authority provided by Congress in Section 345 of the fiscal year 1995 authorization language, a number of the other legislative initiatives have not yet been effective or fully implemented. In the case of Section 245 and 246, the Department of Defense Office of General Counsel has had serious problems with them. Section 1113 is about to be enacted. Section 1114 has also encountered challenges at the OSD level and has not yet been implemented. While Congress has been interested in assisting the labs, the biggest hindrance to the lab managers in implementing the original legislation has been local union veto over laboratory managers' initiatives.

14. Senator SESSIONS. Secretary Brownlee and/or General Keane, what specific authority and flexibility do these lab directors need to ensure that they have the technical workforce they need?

Secretary BROWNLEE. The original Section 342 legislation included in the Fiscal Year 1995 National Defense Authorization Act should be modified to allow Defense laboratory directors to test certain initiatives with union consultation (as opposed to union veto), and with a 3-year sunset clause. At the end of the 3-year period, the Army should then make the changes permanent if they have proved effective. These changes could be firmly established through additional legislation if that proves necessary. The Army also would benefit greatly from legislative action that would enable hiring of scientists and engineers at market rates, rather than within the limitations presently imposed by Government pay scales.

## CRUSADER REPROGRAMMING

15. Senator SESSIONS. Secretary Brownlee and/or General Keane, how much of the reprogrammed Crusader funding was transferred into S&T accounts to support the development of next generation weapons systems to replace Crusader?

Secretary BROWNLEE and General KEANE. During fiscal year 2002, \$32 million was reprogrammed from Crusader to initiate the Future Combat System, non-line of sight cannon (FCS NLOS-C) concept technology development (CTD) in fiscal year 2003. This action, along with the \$368.5 million appropriated in fiscal year 2003 for the CTD, reduced the Crusader program termination costs and benefited the FCS program by transferring Crusader technology, engineering experience, vital information, and facilities to the FCS NLOS cannon demonstration. The CTD is progressing along a timeline to advance the cannon designs that support fielding the first unit in the unit of action and building a demonstration vehicle that will execute test firing and mobility demonstrations starting in September 2003.

16. Senator SESSIONS. Secretary Brownlee and/or General Keane, will this money be used to accelerate the programs being developed by the joint Army-DARPA FCS program?

Secretary BROWNLEE. Yes, the reprogrammed fiscal year 2002 funding along with the \$368.5 million appropriated in fiscal year 2003 is dedicated for FCS NLOS CTD work and will directly support a cannon demonstration vehicle. Another essential aspect of the FCS NLOS CTD is the development of a design that supports initial fielding with the first unit of action. Since the NLOS is an integral variant of the FCS family of manned ground vehicles, the FCS NLOS is fully synchronized with the FCS manned ground vehicle design process through the CTD program. This up-front CTD design work simplifies meeting the FCS and NLOS requirements for commonality and interoperability. Additionally, a primary objective of the CTD demonstrator is reducing the engineering risk to the NLOS and other FCS variant design and integration efforts, all of which will accelerate development of the joint Army-DARPA FCS program.

## STRYKER BRIGADE COMBAT TEAMS

17. Senator SESSIONS. General Keane, the Office of the Secretary of Defense reported to Congress that the results of the Stryker-M113A3 operational comparison indicate that neither vehicle was preferred for all of the criteria considered. The Stryker was considered superior under some criteria, the M113A3 was superior on others, and the vehicles were equal on yet others. There was, however, a considerable difference with respect to cost. Twenty-year operating costs are approximately the same, Stryker being slightly cheaper because of fuel efficiency. However, Stryker procurement costs are considerably higher. Why is the Army willing to spend several billion dollars extra to procure the Stryker rather than using equipment currently in the inventory to field the Interim Brigade Combat Teams (IBCT)?

General KEANE. The Army selected the family of Stryker vehicles to equip our Interim Force because it best fulfilled the Army's tactical and operational requirements. The results of the comparison evaluation validated the decision to choose Stryker because the Stryker vehicle provided significant performance and supportability advantages. These advantages outweighed the primary competitor's submission advantages of a lower cost and a better delivery schedule.

Both the Office of the Secretary of Defense and the Army Test and Evaluation Command comparison evaluation reports note that the Stryker is superior in the critical area of survivability. While the M113A3 does have better mobility in severe terrain, the Stryker is faster, quicker, and more operationally mobile—capabilities necessary to fight our new interim brigades as envisioned. The ongoing initial operational test and evaluation and the congressionally mandated operational evaluation of the first Stryker Brigade Combat Team will address Stryker's ability to meet the tactical and operational requirements. We remain confident that these tests will demonstrate that the Stryker fully meets the requirements reflected in the organizational and operational concept and the vehicle specifications outlined in the Stryker operational requirements document.

18. Senator SESSIONS. General Keane, the Department has asked the Army to evaluate the SBCT capabilities and to make recommendations regarding areas where the Army can improve the capabilities of the 5th and 6th Stryker Brigades. The report is due in July 2003. Can you provide us some insights into what capabilities will be added to the SBCTs? Do you see a need to increase organic aviation assets?

General KEANE. The Army is not complete with its analysis at this point, so any discussion of recommendations at this time is premature. I can tell you that the Army is looking at several SBCT enhancement options—to include enhanced sensors, upgraded communications, more precision munitions, and the possibility of adding Comanche, should those aircraft become available in the future. Since Stryker brigades are optimized for combat in complex and urban terrain, these enhancements could make each SBCT more lethal and better able to operate as part of a joint force.

19. Senator SESSIONS. General Keane, will these capabilities be applied to the first four Stryker brigades?

General KEANE. As time and funding permit, the Army certainly will look at retrofitting enhanced capabilities into the first four Stryker brigades. As a matter of course, the Army looks at the feasibility of spiraling new technologies into its standing formations whenever possible. We always desire to provide our soldiers with as much warfighting capability as possible. As you can appreciate, we must balance this strong desire against constraints imposed by funding level limitations and other competing operational and acquisition requirements.

20. Senator SESSIONS. General Keane, if aviation assets are to be added to the brigades, will that change the acquisition objective for Comanche helicopters?

General KEANE. If the decision to integrate the Comanche helicopter into Stryker brigades is taken, then there would need to be a full review of the Comanche fielding plan. The Comanche helicopter is not sequenced or planned for the Stryker brigades. The first five Stryker brigades are slated for fielding before completion of the Comanche engineering, manufacturing, and development phase in fiscal year 2009. The final Stryker brigade fielding for the Pennsylvania Army National Guard covers an extended 5-year schedule from fiscal year 2005 to fiscal year 2010.

Presently, the Comanche is planned to be the Objective Force multirole aircraft. If a decision were made to field the Comanche within Stryker brigades, we believe that 12 additional low-rate initial production Comanches would be required at a cost of \$540 million per brigade. Absent a major change in schedule, presently unforecast

Stryker brigade fieldings would occur concurrently with Objective Force fieldings and could delay Comanche fieldings to Objective Force units.

However, we are not yet sure that Comanche will be an appropriate addition to the Stryker brigade. We continue to study options of embedding current aviation platforms within the Stryker brigades. Developing a generic mix of aircraft to enhance the range of Stryker brigade missions is resource intensive in equipment and personnel. Comanche's reduced supportability footprint is one significant attribute that allows us to realize a habitual air-ground operational teaming in the Objective Force.

From both a resource and operational perspective, our best outcome is to field an appropriate and capable aviation force into a structure that is supportable, deployable, but most of all, effective for the range of Stryker missions. At present, our analysis shows we can best support Stryker brigades with a tailored, dedicated, direct support aviation package designed to enhance Stryker brigade capabilities and mission requirements. We must continue to study options in this area before drawing any firm conclusions about whether to, and then how to, integrate Comanche within the Stryker brigade.

21. Senator SESSIONS. General Keane, how do you intend to fund these capabilities?

General KEANE. The Army has made difficult decisions in the fiscal year 2004 budget proposal regarding which programs to fund. We killed 24 programs and restructured 24 others for over \$22 billion to dedicate toward the Objective Force. We would have to weigh carefully the capabilities gained versus the capabilities lost from any additional program adjustments involved with Stryker brigade enhancements. There are no easy financial offsets remaining, so we cannot presently advise the subcommittee on precisely how SBCT enhancements might be funded. We will work to keep the subcommittee informed of options being explored as our OSD-mandated study of this issue continues.

22. Senator SESSIONS. General Keane, given the delicate balance in the Army budget request, how would you prioritize between greater capabilities for the first four brigades against funding the procurement of the 5th and 6th Stryker brigades?

General KEANE. After a thorough analysis of the security environment and anticipated operational requirements, the Army determined that at least six SBCTs were required to fill the current capabilities gap. While enhancing one or more SBCTs would improve overall force capabilities, we have determined that eliminating one or more SBCTs to pay for enhancements to the remaining units would result in a reduced overall capability. Consequently, we strongly advocate fielding of all six Stryker Brigades, and request continuing Airland Subcommittee support for them all.

#### CERTIFICATION EXERCISE

23. Senator SESSIONS. Secretary Brownlee, the Fiscal Year 2002 Defense Authorization bill directed the Army to conduct an operational evaluation of an SBCT against the full spectrum of anticipated threats prior to deployment and certify that it is operationally suitable. Can you describe the exercise as currently envisioned and provide us a status report on the planning for this evaluation?

Secretary BROWNLEE. Planning for the Operational Evaluation (OE) is complete. We will start execution of the plan on April 1, 2003, at the National Training Center (NTC). The commander's assessment will focus on brigade operations with joint aspects in a full spectrum environment against a full spectrum threat. The OE will be conducted at two of the Army's Combat Training Centers (CTC): NTC from April 1 to 11, 2003, and the Joint Readiness Training Center (JRTC) from May 17 to 27, 2003.

The NTC phase begins with battalion-level training and live-fire exercises and evolves into a brigade-level field exercise. The brigade event will emphasize offensive operations, force protection, and intra-theater lift and resupply against a world-class opposing force (OPFOR) in a desert environment under mid- to high-intensity combat operations.

The JRTC phase will commence with an early entry operation and a relief-in-place mission that will involve Special Operations Forces. This phase will emphasize maneuvers in restricted terrain and military operations in urban terrain (MOUT) under low to medium intensity combat operations. The JRTC rotation will focus on the complete range of military operations as a contingency mission against another world-class OPFOR. Additionally, there will be a wide spectrum of asymmetrical

threats. Training and evaluations at both CTCs will be conducted in a free-play environment. This gives the OPFOR more latitude to challenge the operational suitability of the Stryker Brigade.

Throughout the OE process, the Brigade will validate the ability of the SBCT to deploy strategically by programming rail, sea, and air transportation of the Stryker vehicle and SBCT equipment. This deployment exercise includes a planned insertion of combat elements by C-130 aircraft.

24. Senator SESSIONS. Secretary Brownlee, will the SBCTs conduct missions across the spectrum of combat during this evaluation? Can you give examples of the missions they will conduct?

Secretary BROWNLEE. The SBCT will conduct missions across the spectrum of combat. Conducting the OE at two different CTCs will give us the opportunity to evaluate the performance of the SBCT in a wide range of demanding and distinctly different terrain. Additionally, the SBCT will be challenged by a continuous variety of asymmetric threats, irregular forces, terrorists, civilian encounters, and coalition forces.

The SBCT was designed as a full spectrum, early entry combat force. The brigade has full utility, confirmed through extensive analysis, in all operational environments against all projected future threats, but it is optimized primarily for employment in complex and urban terrain, confronting low-end and mid-range I threats that may employ both conventional and asymmetric capabilities. The SBCT will deploy very rapidly, execute early entry, and conduct effective combat operations immediately on arrival to prevent, contain, stabilize, or resolve a conflict. Missions at NTC will focus on medium- to high-intensity conflicts conducted in a desert environment against a heavy mechanized and armored threat. The JRTC evaluation will focus on a low to medium intensity conflict conducted in restricted and urban terrain against both conventional and unconventional enemies. Asymmetric threats will be incorporated into both scenarios. The SBCT will conduct both offensive and defensive operations and will include live-fire exercises. Specific missions they will execute are: early entry operations, distributed simultaneous offensive operations, brigade attacks, defensive operations, area security operations, tunnel complex operations, and sustainment operations. The SBCT will also employ a full range of joint, lethal, and non-lethal fires.

#### APACHE LONGBOW

25. Senator SESSIONS. Secretary Brownlee and/or General Keane, I understand the Commander of the Army's Aviation Center approved the proposed Block III series of upgrades for the Apache Longbow AH-64D attack helicopter with the intent to start the program in the fiscal year 2007 time frame. It is anticipated that the Block III improvements to the Apache will enable network-centric operations, increase sensor ranges, and improve platform lethality. There is some indication that the Block III program will allow the Apache Longbow to become the heavy attack helicopter for the Objective Force. Has the Block III helicopter been included as part of the unit of employment analysis?

Secretary BROWNLEE and General KEANE. The unit of employment analysis, although still a work in progress, has included Longbow Block III. The analysis included Longbow Block III teamed with both Comanche and unmanned aerial vehicles. The Apache Longbow is the initial attack helicopter for the Objective Force. The Block III initiative ensures the Longbow remains a valid and capable member of the system of systems in the Objective Force until a future attack platform is developed and fielded.

26. Senator SESSIONS. Secretary Brownlee and/or General Keane, what is the impact of the Block III Apache on the Comanche helicopter requirement? Can the Block III Apache fulfill the attack helicopter requirement for the Objective Force, obviating the necessity for additional Comanches?

Secretary BROWNLEE and General KEANE. In fact, the case is just the opposite. The initial Comanche procurement objective approved 650 airframes at a production rate of 60 per year using spiral development through a Comanche Block III configuration. The current funding levels restrict Comanche to the armed reconnaissance configuration. The Comanche decision caused the Army to examine how to best ensure the Longbow Apache is relevant in the Objective Force. The Longbow Block III program will meet all of the known Objective Force requirements and extend the life of the airframe. However, the Army's position on Comanche as a multirole aircraft remains constant.

27. Senator SESSIONS. Secretary Brownlee and/or General Keane, how will you fund this initiative?

Secretary BROWNLEE. The Army will examine funding options for this program in Program Objective Memorandum 2005–2009. The funding profile for the Longbow Block III program begins in fiscal year 2005 with research, development, testing, and engineering and non-recurring engineering requirements. Initial airframe deliveries would begin in fiscal year 2008.

#### CH-47 CHINOOK

28. Senator SESSIONS. General Keane, the Army has learned many lessons from the ongoing war on terrorism, particularly from the operations in Afghanistan. One of these lessons was the operational capability and desirability of the Chinook CH-47F and the Special Operations Forces version, the MH-57G. To that end, during the fiscal year 2004 budget review process, the Department directed the Army to provide 24 additional MH-47G Chinook helicopters to Special Operations Forces by reprioritizing current CH-47F remanufacture work. What is the economic and operational impact of this decision?

General KEANE. Economically, adjusting the CH-47F production schedule to comply with the Department directive will add an estimated \$132 million to the CH-47F life-program cost, half of which, \$63.6 million, will be realized in fiscal years 2005 to 2009. The primary reason for this cost increase stems from the results of front-loading MH-47Gs in the production schedule. Formal cost increase estimates are under review and will be refined by the Army Cost and Economic Analysis Center. Additionally, if the Army elects to modify additional aircraft at the end of the program to restore those Chinooks transferred to Special Operations Forces, the cost to buy back the transferred CH-47D to CH-47F conversions is estimated at an additional \$444 million in base-year dollars. The buy-back would come from the Army's 130 Chinooks that are not currently funded for the CH-47F conversion.

Operationally, we are already short of our total Chinook requirement. Transformation requires 513 aircraft and we have a current inventory of 463 Chinooks. Our emerging Objective Force requirement is 502 Chinooks with digital connectivity. Yet due to competing priorities, we currently only have 333 remanufactures funded: 272 CH-47Fs and 61 MH-47Gs. We have no new-build Chinooks funded. In addition to these forecast aircraft shortages, our preliminary analysis of the DOD directive indicates the Army will incur a reduction of aircrew experience in the conventional aviation force for several years. This reduced expertise will be most noticeable in the CH-47 crew chief senior noncommissioned officer ranks. We also anticipate that the Army's CH-47F first unit equipped will slip 21 months as a result of the requirement to front-load MH-47Gs in the Chinook production line.

29. Senator SESSIONS. General Keane, it is my understanding that the “touch hours”, the time spent making an item, on a MH-47G is twice the “touch hours” required to make a CH-47F. With a 2-year delay in the CH-47F program, has the Army assessed the impact on the unit cost of the CH-47F Chinook and has the Department provided any resources to cover these costs?

General KEANE. There are two issues that must be addressed in response to this question: man-hour costs and the costs incurred from CH-47F production delays. First, there will not be any direct impact from man-hour costs to the anticipated Army per-unit price for the CH-47F. It will require approximately 26,000 man-hours to completed CH-47F and approximately 50,000 man-hours to complete a MH-47G. Funding the difference in the labor hours is the responsibility of the U.S. Special Operations Command (USSOCOM). USSOCOM has programmed funds to pay for the additional labor hours required to manufacture the MH-47G. As a result, the increase in labor hours alone will not directly impact the unit cost of the CH-47F to the Army.

The second issue—CH-47F production delays—will have an impact on unit cost. Due to the pressing requirements of the global war on terrorism, most of the first three production lots of the Chinook will be dedicated to the MH-47G. This initial MH-47G focus will require the contractor to re-tool and re-configure the Chinook production line from the MH-47G to the CH-47F after these initial lots have been manufactured. Costs incurred from this industrial adaptation coupled with other small inefficiencies anticipated from production transition will result in increased unit costs to the Army for the CH-47F. Presently, we estimate that the per-unit CH-47F cost increase will be less than 10 percent. The Army Cost and Economic Analysis Center is working on a revised cost estimate for the CH-47F in light of

the DOD directive. We will have a better feel for additional program costs once this analysis is complete.

#### BLACK HAWK HELICOPTER

30. Senator SESSIONS. Secretary Brownlee, I am concerned about the funding profile for new Black Hawk helicopters. As currently configured, the budget funds 10 this year, 8 in fiscal year 2005, 28 in fiscal year 2006, 23 in fiscal year 2007, 5 in fiscal year 2008, and 4 in fiscal year 2009, with 9 remaining to be procured in the out-years. This kind of profile causes havoc for a manufacturer, and costs the Army more in the long-run. What is the possibility that you can spread the quantities out in a more even distribution, and complete the buy earlier to stabilize the program and reap those savings?

Secretary BROWNLEE. There is currently a 5-year multi-year/multi-service production contract with the Army and the Navy. The Navy's procurement quantities from fiscal year 2002 to fiscal year 2006 are: 13, 15, 13, 15, and 26 respectively. The combined Army and Navy procurements approximate the procurement Economic Order Quantity. The yearly quantities are more evenly distributed when the Navy procurements are added. The Army is procuring 80 aircraft and the Navy 82 aircraft during the current 5-year multi-year/multi-service contract. Savings have been made by use of this multi-year/multi-service contract. The Army is nearing its end strength requirement of 1,680 Black Hawks. Quantities in fiscal year 2007 and beyond will be reconsidered in following budgets.

31. Senator SESSIONS. Secretary Brownlee, it is my understanding that the Black Hawk UH-60M recapitalization program may face a delay. What is the current status of the Black Hawk recapitalization program?

Secretary BROWNLEE. The Army is projecting a \$41.8 million cost overrun in the Black Hawk UH-60M program in fiscal years 2003 to 2007. The cost growth is a result of a combination of factors: Sikorsky Aircraft Corporation underestimation of work and lack of cost controls; and Army configuration changes that add capability, improve aircraft performance, and resolve safety issues. The Army has developed a plan that mitigates the cost overrun internal to the UH-60M program while minimizing delays to the program. The plan will cap the contractor's work on the UH-60M program in fiscal year 2003 to the Army's current funding level. The plan will mitigate cost growth in fiscal years 2004 to 2007 by reducing UH-60M production by seven aircraft in those years. To minimize schedule delays, the Army plans to build four additional prototypes in fiscal year 2004 that will help accelerate the development and operational test requirements. All these changes will result in a 6-month delay of the first unit equipped from the fourth quarter of fiscal year 2006 to the second quarter of fiscal year 2007.

#### RESERVE COMPONENT AVIATION

32. Senator SESSIONS. General Keane, the Fiscal Year 2003 Defense Authorization bill directed the Chief of the National Guard Bureau to provide a report on the impact of the Army Aviation Modernization Plan on the Army National Guard. Could you provide a synopsis of the report? Does the fiscal year 2004 Army budget request address the shortfalls identified in the report?

General KEANE. I am happy to report that the acting Chief of the National Guard Bureau (CNGB) completed the report on January 21, 2003. Following the congressionally-mandated review of the report by the Army Staff, the Chief of Staff of the Army forwarded the report and accompanying Army Staff comments to Congress on February 6.

This report indicates that while the Army and the Army National Guard are in basic agreement on the additional aircraft and funding needed to achieve the interim aviation transformation structure of the ARNG, progress toward attaining this goal has been slowed by the unforecast impact of real-world operational contingencies and funding level constraints. The Army has twice delayed the scheduled cascade of modernized UH-60A and AH-64A aircraft from the 101st Airborne Division and other active duty units to the ARNG because of contingency operations in Afghanistan and Iraq. These unfortunate, but we believe necessary, delays have slowed the transfer of approximately one-third of the modernized aircraft needed for the initial phases of the ARNG aviation modernization plan. We anticipate making good on these transfers during fiscal year 2004. For the longer term, Army funding levels through fiscal year 2009 remain insufficient to provide the full number of modernized aircraft needed by the ARNG. In addition, many of the aircraft to be

provided to the ARNG will not be the most current variant of the airframe series. The fiscal year 2004 Army budget request only partially addresses these shortfalls identified in the CNGB report.

Despite these challenges, the Army continues to work with the ARNG to complete the Guard aviation modernization plan in as timely and comprehensive a manner as possible. We also will continue to work with DOD and Congress to secure the funding necessary to address identified shortfalls, consistent with the overall needs for total Army force readiness and modernization.

#### COUNTERATTACK CORPS MODERNIZATION

33. Senator SESSIONS. Secretary Brownlee and/or General Keane, the heavy Counterattack Corps remains the highest priority for Legacy Force recapitalization and selected modernization. However, the Army funded the Objective Force by reallocating funding from the Counterattack Corps, reducing the recapitalization and selected modernization program from three divisions and an armored cavalry regiment as funded in the fiscal year 2003 budget request to only two divisions. With 48 program terminations and restructures, the Army has again taken risk in the current (Legacy) force. Over the past several years, the Airland Subcommittee has asked the Army leadership how they would prioritize among the Objective, Interim, and Legacy Forces. With 77 program terminations and/or restructures in the Legacy Force, it is clear that the Army has set priorities and is willing to take risk in the current force.

What are the implications for reconnaissance and security missions of not modernizing the Counterattack Corps' armored cavalry regiment? Please include in your response what you can plan to do to that unit to enable it to fight along side the divisions in the Corps.

Secretary BROWNLEE and General KEANE. Balancing risk is integral to Army transformation. The Army has accepted risk in selective modernization and recapitalization, and we continue to assess these risks as we balance current readiness, the well-being of our people, Army transformation, the war on terrorism, and new operational commitments.

The Army will continue to employ the armored cavalry regiment in support of Counterattack Corps operations. A major area of concern will be command and control and information sharing between forces.

The Army is currently reviewing the modernization requirements of 3rd Armored Cavalry Regiment. Abrams tank options, based on available funding, will include equipping the 3rd Army Cavalry Regiment with M1A2 System Enhancement Program (SEP) tanks and Bradley M3A2 ODS-D+ with Force XXI Battle Command Battalion/Brigade and Below capability and the second generation forward looking infrared thermal weapon sight system. These added capabilities would allow seamless, digital communications between the 3rd Army Cavalry Regiment, the division, and in the corps. It would also allow the 3rd Armored Cavalry Regiment to acquire targets at the same distances as those divisions. This digital capability is a long-term investment and provides a digital bridge to the Future Combat Systems and Objective Force.

34. Senator SESSIONS. Secretary Brownlee and/or General Keane, how much would it cost to modernize the ACR?

Secretary BROWNLEE. The cost for modernizing the 3rd Armored Cavalry Regiment is \$726 million. This cost would include providing an additional 129 M1A2 SEPs and 144 M3A2 ODS-D+ Bradleys, and procuring other critical combat support and combat service support systems for the unit. Providing funding in this amount will ensure that 3rd Armored Cavalry Regiment modernization meets the minimal acceptable capabilities commensurate with the rest of the Counterattack Corps.

#### INDUSTRIAL BASE

35. Senator SESSIONS. Secretary Brownlee and/or General Keane, the cancellation of current programs is certain to affect the industrial base. For example, United Defense, one of only two remaining armored vehicle manufacturers, has briefed subcommittee staff that it will have to close three production facilities 2 years before Future Combat Systems low-rate initial production begins. What are Army plans for preserving the industrial base and ensuring that the requisite production facilities will be available for meeting FCS production time lines?

Secretary BROWNLEE and General KEANE. Army transformation required cancellation of certain programs so we could afford FCS. We assessed the risks to the indus-

trial base from these program cancellations and, where we judged necessary, we have taken steps to mitigate adverse impacts. We saw two major risks to the industrial base as a result of the decision to not modernize the Counterattack Corps. Both of these risks involved maintaining viable armor system production capabilities at two production facilities: the Lima Army Tank Plant in Ohio and the United Defense combat vehicle production facility in York, Pennsylvania.

The first risk involves General Dynamics' combat vehicle fabrication capability at the Lima Army Tank Plant. We judged that risk as unacceptable since Lima initially had an insufficient workload to remain viable as a production facility for the fabrication of the Marine Corps' Advanced Amphibious Assault Vehicle and the Army's FCS ground vehicles. To mitigate this risk, the Army has restructured some programs and now has sufficient work to sustain Lima in active production until these new programs are brought into production.

The second risk involves maintaining United Defense's combat vehicle production facility in Pennsylvania. We recognize that this facility would also be a likely candidate to manufacture FCS ground vehicles in the future. We expect that the production facilities in Pennsylvania will remain viable and open through calendar year 2004 because of a continuation of their current fiscal year 2003 Bradley upgrade work. With this expectation and acceptance of risk, we did not program fiscal year 2004 funding for Bradley upgrades to protect that portion of the industrial base.

While we cannot guarantee additional work from support for fielded systems, foreign sales, and reprocessing vehicles from operations in Iraq, the Army is looking hard at workload projections after calendar year 2004 and identifying fiscal year 2005 options which might be needed to protect any United Defense combat vehicle fabrication capability determined essential for future production. Those options will consider United Defense work on development of manned FCS non-line of sight gun system, unmanned ground systems, foreign sales, and other new non-traditional business. All of the other industrial base risks from not funding the Counterattack Corps are judged acceptable.

36. Senator SESSIONS. Secretary Brownlee and/or General Keane, how will the Army cost-effectively support the tanks, Bradley Fighting Vehicles, tank recovery vehicles, and self-propelled howitzers which will be in the inventory for many years to come without a healthy industrial base?

Secretary BROWNLEE and General KEANE. Given that final vehicle deliveries are scheduled for June 2005, we expect fiscal year 2003 funding and other work to keep essential skills active through the end of calendar year 2004. The program funding for system sustainment and technical support will transition in fiscal year 2006 from the Army procurement to the operations and maintenance account. We believe United Defense's engineering staff and the Army's own in-house staff will be able to sustain the vehicles made by United Defense.

The shortage of Bradley upgrade funding is manageable, but there are two key issues we must address. The first issue is how we will fund the required technical support to the fielded fleet. During fiscal year 2003, the Army has had to fund vehicle technical support from operations and maintenance accounts. This approach, while necessary, presents us a challenge as we address both peacetime requirements and operational requirements for the global war on terrorism and operations in Iraq. Obviously, we continue to finance the highest priority operational requirements first and defer those that are of a lower priority. A second issue is whether key suppliers will abandon the supplier network as we reduce requirements. This is an ongoing challenge. In our efforts to mitigate risk in this area, the Army is conducting additional analysis to enable appropriate decisions, for example, to either stockpile components or find alternate suppliers.

#### ABRAMS TANK

37. Senator SESSIONS. Secretary Brownlee, I understand that the Army intends to upgrade 588 M1A2 Abrams tanks to the System Enhancement Program configuration. Subcommittee staff has been briefed that the current plan is to pull the remaining 586 M1A2s that will not be upgraded to the SEP configuration from the units that currently have them and store them in a depot to be used for parts for the SEPs. This would be a bitter pill for the Army and Congress to swallow—using the Army's second most modern tanks for spare parts. Why is the Army contemplating such a drastic action?

Secretary BROWNLEE. The Army is currently funded to upgrade 588 Abrams tanks to the M1A2 SEP configuration. The Army also desires, and is working to secure, funding to upgrade an additional 129 M1A2s to the M1A2 SEP configuration for



modernization of 3rd ACR. This brings the total number of M1A2 SEP tanks produced to 717 for the Counterattack Corps. That leaves 457 M1A2s that would not be upgraded.

By the end of fiscal year 2007, the Army expects to have a pure M1A1 fleet for the remaining active and Reserve component units, thereby reducing the logistical burden of supporting numerous versions of Abrams. The Army will also upgrade its pre-positioned stock with versions of the M1A1 tank allowing units to draw the same model tank they will train on at home station. Finally, the Army will upgrade a major portion of active component forces to Force XXI digital situational awareness.

Since the M1A2 is a unique tank with several obsolete parts and limited second and third tier vendor support, it has become increasingly difficult to support. The M1A2 fleet is not digitally interoperable with digitized forces and would require extensive work to embed these capabilities into this platform. Our analysis shows this approach to be uneconomical and unnecessary.

38. Senator SESSIONS. Secretary Brownlee, why would you not put those tanks in the Counterattack Corps' armored cavalry regiment, another active division, or in the National Guard?

Secretary BROWNLEE. Our intent is to put the M1A2 SEP into the Counterattack Corps across the 4th Infantry Division, 1st Cavalry Division and the 3rd Armored Cavalry Regiment. The Army National Guard has expressed a desire for a pure fleet of the more supportable M1A1 and M1A1 heavy armor tanks. Significant funds would be required to bring excess M1A2s back up to standard for refueling. Due to the current Abrams plan to upgrade the active component with M1A2 SEP and M1A1 AIM tanks and cascade M1A1s to the National Guard, we believe that the funds to upgrade the M1A2 can be used for higher priority requirements.

#### PRE-POSITIONED STOCKS

39. Senator SESSIONS. General Keane, the Army has faced a challenge keeping pre-positioned stocks modernized. I understand that the 3rd Infantry Division drew equipment, such as Bradley Fighting Vehicles, which was less modern than their own back in Georgia. That required them to "train down" to learn how to operate with the less modern equipment, and means that they may fight with less capable equipment while their more capable equipment sits in motor pools in Georgia. The lack of modernized pre-positioned stocks also means that units which deploy quickly and draw that less capable equipment may be the first to fight, while more modernized forces come much later. It appears that may be the case in Iraq, with the 4th Infantry Division, the most modern heavy division, yet to be deployed. Is the Army considering alternatives to deal with this problem, which will only be exacerbated in the future as the Army modernizes two divisions of the Counterattack Corps?

General KEANE. The 3rd Infantry Division drew equipment from Army pre-positioned stocks (APS) that are not the most modern. However, this equipment was well-maintained as evidenced by the readiness rate of the fleet when it was drawn in Kuwait. Furthermore, the equipment used by the 3rd Infantry Division has proven itself successful on the battlefield as exemplified during recent training exercises in Kuwait.

The majority of the equipment within the APS program was built up from stocks drawn down in Europe at the end of the Cold War. Concurrently, Army financial constraints during the post-Cold War drawdown did not allow us to simultaneously modernize all equipment throughout the Active Force, much less the equipment in the APS. Difficult dollar-driven decisions had to be made, and the Army decided to keep less modern equipment in the APS program and field its newest equipment to high-priority operational units. The APS continues to be modernized with equipment cascaded down from high-priority active units receiving new equipment. We believe it remains most correct to assure the highest caliber equipment remains in our active units. However, we continue to review various alternatives to the issue of modernizing APS equipment, with an objective improving our ability to the APS as modern as we possibly can.

40. General Keane, what are the Army's plans for reconstituting the Army pre-positioned stocks after the current crisis with Iraq is resolved?

General KEANE. The APS unit sets that are presently being used in Southwest Asia are projected to remain in theater until at least fiscal year 2005. Consequently, we plan to reconstitute this fleet in the theater with assets that will remain there. The sustainment stocks and ammunition that were issued to units but not used will

be reloaded upon container ships and returned to the Diego Garcia region. The sustainment stocks and ammunition that were used or consumed will be requisitioned and uploaded on container ships when they become available.

#### FAMILY OF MEDIUM TACTICAL VEHICLES

41. Senator SESSIONS. Secretary Brownlee, in fiscal year 2002, the Army conducted a competition for a replacement for the Family of Medium Tactical Vehicles (FMTV) A1. In the Fiscal Year 2003 Defense Authorization Bill, Congress imposed limitations on the Army's ability to award a contract for the FMTV competitive rebuy without certifying a 10 percent cost savings of a multi-year contract over a contract of 5 consecutive years. While the competition was underway, Senator Warner received reports from Afghanistan that the FMTV A0 dump truck was not performing up to specifications. Has the Army corrected deficiencies identified in Afghanistan?

Secretary BROWNLEE. Before the deployment of FMTV dump trucks to Afghanistan, the Army had embarked on an aggressive program to make improvements in the dump configuration. The dump upgrade program began in the field in June 2002 and was accelerated to support deployments. The upgrade program includes 11 changes in all, including a 1/4 inch steel plate bed liner, new stronger tail gate, maximization of the current hydraulic lift system, stronger suspension system, and in-cab controls relocated for greater operator ease. A sideboard kit was added to the upgrade program and addresses the only new issue coming from Afghanistan. To date, all of the 448 dump trucks in the fleet are complete with the exception of 4 vehicles which are deployed, to be upgraded on their return, and 12 vehicles that are located on the outer Hawaiian Islands, planned to be completed by the end of April 2003.

42. Senator SESSIONS. Secretary Brownlee, will you be able to certify a 10 percent cost savings using a multi-year procurement instrument? If not, why not? What savings do you expect to achieve?

Secretary BROWNLEE. The Army will not be able to certify a 10 percent cost savings for the FMTV A1 competitive rebuy. A comparative, verifiable database for successive single year versus multiyear acquisition savings for this program, sufficient for certification, does not exist. The approved acquisition strategy did not require binding single year and multi-year proposals, which would be the only way to verify actual multi-year savings. The Army relies on cost estimating to compute reliable savings estimates associated with multiyear procurement and these savings for the FMTV A1 competitive rebuy program are estimated to be 6.5 percent. Actual savings could approach, or even exceed 10 percent. Both current FMTV A1 competitive rebuy contractors have expressed, orally or in writing, the claim that 10 percent savings are realistic and achievable. These assertions, however, have not been tendered in a binding proposal, and therefore, are not verifiable.

#### RESERVE COMPONENT

43. Senator SESSIONS. Secretary Brownlee and/or General Keane, the Army National Guard (ARNG) force structure includes eight divisions. The Army, with the support of the ARNG, is in the process of converting two of these divisions into a combat service support structure. It is my understanding that the Army National Guard has agreed to restructure two-to-four divisions into multifunctional organizations. Has the Army made a decision with regards to the design and operational capabilities of the ARNG multifunctional divisions?

Secretary BROWNLEE and General KEANE. There are two concepts you have mentioned. The first is the Army National Guard Division Redesign Study (ADRS), the second is the Army National Guard Restructuring Initiative (ANGRI).

In 1995, the ARNG combat structure consisted of 8 divisions and 18 separate brigades, for a total of 42 combat brigades. Under the ADRS plan that was approved in 1996, 12 combat brigades and slice elements from two division bases would convert to required combat support/combat service support structure. At the end of ADRS, the ARNG would have 8 divisions and 15 separate brigades, 9 of which would be embedded in the divisions, for a total of 30 combat brigades. ANGRI will adapt the ARNG to the new Defense Strategy while providing a bridge to the Objective Force. ANGRI will achieve these objectives by converting four of the eight divisions to a more versatile design called the Multi-Functional Division (MFD). Embedded within the MFD is the Mobile Light Brigade (MLB), an infantry-centric organi-

zation enhanced with systems that provide commanders with more versatile capabilities than found in present ARNG divisional brigades.

We are currently staffing the designs for the MFD and MLB for final approval. Our near-term focus is to get the MLB design approved and included in the Program Objective Memorandum (POM) 2005–2009. However, we will continue to refine the MFD design with a goal of addressing MFD requirements in POM 2006–2011.

The MFD will perform operations in a variety of roles. We envision that it will perform missions ranging from a post-hostilities role in a major combat operation, to direct participation in small-scale contingency operation, to providing general purpose capabilities for a homeland security operation supporting Northern Command (NORTHCOM).

After we implement ANGRI, the ARNG force structure will still consist of eight divisions (four MFDs, two heavy, one medium, one light) and some number of separate brigades (to be determined). These will be apportioned to Army missions. Total Army Analysis 2006–2011, which will be completed later this year, will address the specific number of MFDs and MLBs.

As we work through design issues associated with implementation of ANGRI, we will continue to ensure the Army retains the operational capabilities required to meet the National Security Strategy, the Joint Strategic Capabilities Plan, the Contingency Planning Guidance, and other key documents.

44. Senator SESSIONS. Secretary Brownlee and/or General Keane, do you have an estimate of the costs associated with the restructure and, if so, are these costs reflected in the fiscal year 2004 budget request?

Secretary BROWNLEE and General KEANE. The designs for the MFD and the MLB have not yet been finalized; therefore, we cannot provide a cost estimate at this time. Our intent is to begin funding ANGRI in POM 05–09. Consequently, we envision no direct impact on the fiscal year 2004 budget.

45. Senator SESSIONS. Secretary Brownlee and/or General Keane, what is the impact of this reorganization on Army National Guard aviation force structure?

Secretary BROWNLEE and General KEANE. There is no direct impact to Army National Guard aviation force structure as a result of the ANGRI initiative. ANGRI and the ARNG aviation transformation are separate, but complimentary efforts of the overall Army Transformation Campaign Plan—both efforts are intended to bridge the ARNG to the Objective Force.

46. Senator SESSIONS. Secretary Brownlee and/or General Keane, will the contemplative changes solve the Army's problem with respect to military police, civil affairs, and other units which are in extremely high demand in this new strategic environment?

General KEANE. The full scope of operational requirements demanded by the new strategic environment is not known at this time. We continue to assess Army requirements for the global war on terrorism and the emerging strategic environment, and have already planned and programmed a number of required changes into the fiscal year 2004–2009 POM underpinning the Army fiscal year 2004 budget submission. In this initial wave of adaptation, over 19,500 spaces have been programmed for change within the active, Guard, and Reserve force structure. These enhanced force capabilities include some force restructuring to address evolving requirements for military police, chemical specialties, special operations capabilities and civil affairs forces.

The Army will continue to adjust its force structure based on the Secretary of Defense's "1–4–2–1" force-sizing construct. To stay within targeted end strength levels, the Army anticipates that adding capabilities to the Active Force will require the transfer of some mission capabilities between the Active and Reserve Forces. We are exploring a number of options to reduce risk in achieving Army missions in the new strategic environment. Some of these options under study include converting lower demand structure inside the Active Force, converting key capabilities held in the Reserve component but needed on a recurring basis for contingency operations, and changing the Reserve personnel management system by enhancing volunteerism and diminishing involuntary mobilization in order to increase access to Reserve-specific capabilities.

The Office of the Secretary of Defense (OSD), in conjunction with the Joint Staff, has undertaken a study to improve operational availability of all military forces. As part of this undertaking, the active component/Reserve component mix is being studied carefully in the context of short-notice, short-duration major combat operations. This study remains incomplete. However, we anticipate preliminary rec-

ommendations from it, including those that might necessitate force structure changes, may be incorporated as part of Defense planning for fiscal year 2005 that is anticipated from OSD later in the year.

47. Senator SESSIONS. Secretary Brownlee and/or General Keane, are there any other roles and functions that should migrate from active to Reserve or vice versa?

Secretary BROWNLEE and General KEANE. OSD, in conjunction with the Joint Staff, has undertaken a study to improve operational availability of all military forces. As part of this undertaking, the active component/Reserve component mix is being studied carefully in the context of short-notice, short-duration major combat operations. This study remains incomplete. Once finished, we expect it to inform Army decisions on which, if any, forces that should migrate from the Active to Reserve Force (or vice versa). The Army's active and Reserve component force mix is the result of deliberate actions to balance risks and priorities in light of operational requirements, resource constraints, and the "1-4-2-1" force sizing construct. The Army's force mix is designed to support the geographic combatant commander's requirements as determined by the Total Army Analysis process. To stay within constant end-strength levels, we anticipate that adding capabilities to the Active Force will require the transfer of some mission capabilities between the Active and Reserve Forces. Thus, while it remains uncertain precisely which roles or functions might be best reallocated between Army active and Reserve components, we believe that the OSD and Army processes now in place to address this issue will account fully for the key factors in the new strategic environment mandating any such change.

#### RAND ARROYO CENTER

48. Senator SESSIONS. Secretary Brownlee, how does the RAND Arroyo Center support Army transformation efforts?

Secretary BROWNLEE. The RAND Arroyo Center conducts mid- to long-term policy studies and analyses under the direction of the Army's Arroyo Center Policy Committee (ACPC) which is co-chaired by General Keane and the Assistant Secretary of the Army (Acquisition, Logistics and Technology).

The Arroyo program supports Legacy, Interim, and Objective Force topics. Arroyo's research addresses Army transformation efforts such as human resource implications, leader development evaluation, the total Army school system, training development for combat service support systems, managing the Future Combat Systems acquisition program, organizing and managing the Army science and technology community for transformational research and development, CSS transformation (including rapid deployment of early entry forces), support to the Training and Doctrine Command for Army transformational analysis, Objective Force bandwidth requirements, and lessons learned from recent Army employments, e.g., Afghanistan lessons learned.

49. Senator SESSIONS. Secretary Brownlee, is Arroyo's legislatively-mandated cap on funding adequate to support all of the Army taskings for the organization? What would the appropriate ceiling level be?

Secretary BROWNLEE. Yes. The ceiling still allows for adequate support by the Army's Federally Funded Research and Development Center (FFRDC). RAND Arroyo's share of DOD's FFRDC ceiling for fiscal year 2003 is 99 staff-years of technical effort.

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#### QUESTIONS SUBMITTED BY SENATOR PAT ROBERTS

##### EFFICIENT BASING EAST AND SOUTH INITIATIVES

50. Senator ROBERTS. General Keane, are the Efficient Basing East and South Initiatives consistent with the overseas basing review currently being conducted by the EUCOM commander?

General KEANE. The Secretary of Defense has given the Under Secretary of Defense for Policy and the Chairman, Joint Chiefs of Staff, until July 1, 2003, to develop a comprehensive and integrated presence and basing strategy looking out 10 years. The results will determine if the Efficient Basing East and South Initiatives are consistent with the strategy and support for future presence in Europe.

51. Senator ROBERTS. General Keane, if the Efficient Basing East and South Initiatives are not approved, could the Army execute the fiscal year 2004 military construction funds associated with those initiatives within the continental U.S.?

General KEANE. In accordance with overall program priorities, the Army could execute fiscal year 2004 construction funds associated with these European efficient basing initiatives in the continental United States. We would want to work closely with the Office of the Secretary of Defense and Congress to assure that any re-focusing of fiscal year 2004 military construction funds presently focused for Europe is accomplished in accordance with an overall program that accounts for Army soldier and family needs both within and outside the continental United States.

#### FAMILY OF MEDIUM TACTICAL VEHICLES

52. Senator ROBERTS. Secretary Brownlee, to help pay for transformation, the Army has reduced funding for the Family of Medium Tactical Vehicles program. Given the importance of FMTV to both the current force and the Objective Force, does the Army require additional funding to sustain the FMTV program in fiscal year 2004? How would additional funding continue truck modernization?

Secretary BROWNLEE. While the Army can sustain the FMTV program with the fiscal year 2004 funding in the fiscal year 2004/2005 President's budget, additional funds would be put to use to continue and accelerate modernization of the medium fleet.

#### ADVANCED ALUMINUM AEROSTRUCTURES INITIATIVE

53. Senator ROBERTS. Secretary Brownlee, transforming the force hinges, in part, on our ability to stimulate innovation and apply best business practices in the design-manufacturing paradigm. Along these lines, this committee has supported the Advanced Aluminum Aerostructures Initiative in each of the past 3 years to identify, develop, and demonstrate design and manufacturing capabilities that will enable systems producers to provide aluminum aerostructures at a dramatically reduced cost. The program, which is managed by the Air Force Research Laboratory's Air Vehicles Directorate, has targeted select components on a variety of platforms, including the C-17, C-130, UCAV, JSF, F-22, and Global Hawk, and produced some very impressive achievements in terms of part count reductions, weight reductions, and cost reductions.

As the Army continues its efforts to transform the force, it would seem that the same principles and methodology demonstrated in the Advanced Aluminum Aerostructures Initiative could be applied to ground systems modernization to substantially reduce the weight and costs of vehicle structures and, thereby, enhance performance and affordability of future combat systems. Would you review the Air Force's Advanced Aluminum Aerostructures program and provide me with your perspective on how we might apply this innovative design/manufacturing methodology to our ground systems modernization program to enhance transformation and generate cost and weight reductions in military ground vehicle structures? I would appreciate your response as soon as possible so that your input can be factored into the committee's deliberations on the fiscal year 2004 budget request.

Secretary BROWNLEE. The Army is familiar with the ALCOA/Air Force Advanced Aluminum Aerostructures Initiative (AAAI) program. We are aware of this program as a result of discussions conducted between Army Tank-Automotive Research Development and Engineering Center (TARDEC) engineers, the ALCOA Technical Center in Pittsburgh, and the ALCOA Automotive Division (located in the vicinity of TARDEC). At the summer 2001 annual Automotive Industry Aluminum Association symposium, TARDEC engineers made presentations to the aluminum industry, informing it about the Army's transformation challenges—and industry's opportunities—to reduce future ground vehicle size, weight, and cost without sacrificing lethality and survivability. They encouraged the aluminum industry to take advantage of the new opportunities to apply aerospace technologies to help meet the FCS objectives.

Since that meeting, TARDEC has taken further steps to facilitate introductory relationships between ALCOA and the Army's FCS Lead Systems Integrator and its ground vehicle contractor team. As a result, we can report that ground vehicle industrial base contractors with a stake in Army transformation are aware of, and have indicated high interest in, the methodologies and technologies described by ALCOA. We are confident that the best solutions and options available to incorporate aluminum in the Army's FCS are under active review and being incorporated

in the budgetary proposals underpinning the fiscal year 2004 and future fiscal year Army budget submissions.

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QUESTIONS SUBMITTED BY SENATOR CARL LEVIN

MODULAR CAUSEWAY SYSTEMS

54. Senator LEVIN. General Keane, the Army has not funded the Modular Causeway Systems (MCS) in fiscal year 2004. After systems bought under current contracts are delivered, the Army will still be critically short of MCS assets, including 4 roll-on/roll-off discharge facilities, 14 causeway ferries, 1 floating causeway, and 15 warping tugs. The decision to cease MCS procurement will have a devastating impact on the industrial base and incur substantial costs to rebuild that base and resume production in the future. How does the Army intend to meet the outstanding requirement for MCS?

General KEANE. The projected Army MCS shortfall after fiscal year 2003 production buys is 2 roll-on/roll-off discharge facilities, 13 causeway ferries, 9 warping tugs, and no floating causeways. This shortfall is less than previously projected as the Army now plans to field three company sets rather than four. There is no additional program funding until fiscal year 2007. The Army's intent is to fully fund the entire MCS requirement and has budgeted at least \$12 million per year from fiscal year 2007 to fiscal year 2013 for MCS production.

55. Senator LEVIN. General Keane, what would be the cost to procure the outstanding requirement assuming a renewal of current contracts?

General KEANE. Based on the unit costs in the current production contract's final option period (ending in November 2004), the requirements shortfall is approximately \$61 million.

56. Senator LEVIN. General Keane, what would be the cost to procure the outstanding requirement assuming that the current contract is allowed to lapse?

General KEANE. The estimated cost of the requirements shortfall assuming a new contract action is \$84.5 million.

57. Senator LEVIN. General Keane, what would be the cost of reopening current production facilities in the future if allowed to close at the completion of current contracts?

General KEANE. Based upon non-recurring costs in the current contract, the estimated non-recurring costs for these systems when program funding is next expected to be available (fiscal year 2007) is \$2.6 million.

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QUESTION SUBMITTED BY SENATOR EVAN BAYH

58. Senator BAYH. Secretary Brownlee, I would like to know what the Army is doing to ensure it maintains a viable industrial base to support current systems in the interim as we move to the Objective Force. Specifically, what is the Army's plan to sustain the transmission base for both the Abrams tank and the M113 combat vehicle fleets over the next 20 years?

The Army is working closely with Allison Transmission Division to maintain a combat vehicle transmission support capability for heavy combat vehicles. Obviously, it is difficult to lay out specific plans for the next 20 years for a particular supplier, but we will always take whatever actions are required to support industrial capability that is defense-unique, critical, and endangered.

Specific actions by the Army to preserve the Allison Transmission base include a near-term buy of 43 M113 transmissions, to be awarded by mid-September 2003, and the X200-4 to X200-4a conversion program, beginning August 2004.

Other work includes the Abrams upgrade of X1100-1 to X1100-3b transmissions, part of the Abrams System Enhancement Program. This upgrade will be complete by late calendar year 2003. The Defense Logistics Agency and the Army buy spare parts from Allison Transmission Division that support the Army's overhaul program at Anniston Army Depot. Systems technical support will require Allison to provide engineering and logistics support. Finally, as combat vehicles return from Iraq, Allison will likely get additional work.

Obviously, Allison has other work, such as foreign military sales that also helps maintain this capability. As a prime example, Egypt may buy an additional 275 tanks. Depending on their terms, Allison may get the contract for the transmissions

and engineering support. That could begin in September 2005 and continue for 1 year.

[Whereupon, at 5:19 p.m., the subcommittee adjourned.]

**DEPARTMENT OF DEFENSE AUTHORIZATION  
FOR APPROPRIATIONS FOR FISCAL YEAR  
2004**

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**THURSDAY, APRIL 3, 2003**

U.S. SENATE,  
SUBCOMMITTEE ON AIRLAND,  
COMMITTEE ON ARMED SERVICES,  
*Washington, DC.*

**NAVY, MARINE CORPS, AND AIR FORCE AVIATION AND  
AIR-LAUNCHED WEAPONS PROGRAMS**

The subcommittee met, pursuant to notice, at 2:50 p.m., in room SR-232A, Russell Senate Office Building, Senator Jeff Sessions (chairman of the subcommittee) presiding.

Committee members present: Senators McCain, Sessions, Chambliss, and Pryor.

Majority staff members present: Ambrose R. Hock, professional staff member; Gregory T. Kiley, professional staff member; and Thomas L. MacKenzie, professional staff member.

Minority staff members present: Creighton Greene, professional staff member; and Maren R. Leed, professional staff member.

Staff assistants present: Andrew W. Florell and Nicholas W. West.

Committee members' assistants present: Christopher J. Paul, assistant to Senator McCain; James Beauchamp, assistant to Senator Roberts; James W. Irwin and Clyde A. Taylor IV, assistants to Senator Chambliss; Aaron Scholer, assistant to Senator Lieberman; William Todd Houchins, assistant to Senator Dayton; and Terri Glaze, assistant to Senator Pryor.

**OPENING STATEMENT OF SENATOR JEFF SESSIONS,  
CHAIRMAN**

Senator SESSIONS. Good afternoon. It is great to have Senator Pryor here as our ranking member today, a new Senator but a fine public servant. We served some time in the same office as attorneys general of different states. So it is great to have him in the Senate.

Senator PRYOR. Thank you.

Senator SESSIONS. I would like to welcome each of our witnesses here and thank you for taking the time from your busy schedules as the Airland Subcommittee meets to consider how the fiscal year 2004 budget request and the Future Years Defense Program



(FYDP) support aviation and air-launched weapons programs and priorities.

Many of the platforms and systems we are going to be discussing today are at this very moment being used by the young men and women of our armed services who have been deployed in harm's way. We owe all of them a debt of gratitude and pledge our support to them.

I especially want to express my sympathy for the families of those who have fallen or who have been wounded on the battlefield. I will be at a funeral Saturday for Private First Class (PFC) Howard Johnson from my hometown of Mobile. I knew his father. He is the pastor of Truevine Missionary Baptist Church with just a fine family. He was out there doing what he could for his country and gave his life for it.

Our predecessors on the Armed Services Committee over the last 40 years have made key and difficult investment decisions to authorize the development and procurement of many of the aircraft and weapons systems that are being used today around the world. Many of those were criticized at the time. So it is now our responsibility to ensure that the weapons systems that will be used in the decades to come are developed and produced in an efficient manner.

Today in the deserts of Iraq, our ground forces have the ability to maneuver with the benefit of air dominance. We must have the same goal today to provide the men and women of the armed services with effective and suitable equipment with which to accomplish their missions. Domination of the airspace is an absolute requirement.

I want to thank Senator Pryor for his willingness to act as ranking member today. I am sure Senator Lieberman appreciates your willingness to fill in for him.

Our panel of witnesses today should be able to give unique insight into both the requirements and acquisition plans for the aviation programs of the Navy and Air Force departments. From the Department of the Navy we welcome Secretary John Young—there he is—the Assistant Secretary of Navy for Research, Development, and Acquisition. With him are Vice Admiral Nathman, the Deputy Chief of Naval Operations for Warfare Requirements and Programs; Lieutenant General Hough, the Deputy Commandant of the Marine Corps for Aviation; and from the Department of the Air Force we have Secretary Marvin Sambur, the Assistant Secretary of Air Force for Acquisition; and Lieutenant General Keys, the Deputy Chief of Staff for Air and Space Operations.

A good panel. They can answer, I am sure, any questions that we would have.

There have been numerous studies completed on the affordability of projected aviations programs. In the area of tactical aviation, we have the F/A-18E/F Super Hornet in full rate production, the FA-22 Raptor in low rate production, and the Joint Strike Fighter (JSF) in Systems Development and Demonstration (SDD) with production scheduled later in the decade.

As the average age of our current tactical aircraft continues to increase, it is clear that we have to recapitalize. The cost associated with this recapitalization, however, makes it imperative that we

carefully examine the performance and numerical requirements for these platforms.

The subcommittee is also interested in precision-guided munitions. In Operation Desert Storm, only 10 percent of the air dropped munitions were precision-guided. In our current conflicts, the vast majority of our weapons have been precision-guided. This has increased the survivability of our strike aircraft, decreased the incidence of collateral damage, and provided a substantial force multiplier effect.

I understand that the production of our laser-guided bombs is at the maximum rate and that the production of the Joint Direct Attack Munition (JDAM) is scheduled to achieve maximum rate in the near future. I have been concerned, however, that we do not have a sufficient inventory of these weapons. I feel we must do all we can to achieve necessary inventory objectives.

Another area of concern to the subcommittee is the Department's plan for providing electronic attack. Since the current inventory of EA-6B Prowlers used by all three Services is aging, I understand that quite a few of our current fleet of EA-6s are either grounded or have flight restrictions. We will talk about that.

This subcommittee is aware of ongoing negotiations between the Air Force and industry for the potential lease of airborne refueling aircraft. Although no proposal has been delivered to Congress for this approach to recapitalization of the KC-135 fleet, the fiscal year 2004 budget request does include a plan to retire 68 KC-135E aircraft. This would have a significant impact on our ability to provide the required airborne refueling to our mobility, long-range strike, and tactical aircraft.

Again, gentlemen, thank you for being here today. I look forward to your testimony.

Senator Pryor, we would be delighted to have any opening statements you would like to make.

#### **STATEMENT OF SENATOR MARK PRYOR**

Senator PRYOR. Thank you, Mr Chairman. It is an honor to be here with you today. The first thing I need to do is submit a statement by Senator Lieberman for the record, if that is permissible.

Senator SESSIONS. It will be made a part of the record.

[The prepared statement of Senator Lieberman follows:]

#### **PREPARED STATEMENT BY SENATOR JOSEPH I. LIEBERMAN**

Thank you, Mr. Chairman. I would like to take an opportunity to thank our witnesses for appearing before this subcommittee today.

First, I think it's important to note the heroism and professionalism of the coalition Armed Forces presently engaged in hostilities in Iraq. I would like to draw special attention to those forces that undertook the daring and brilliantly executed rescue of PFC Jessica Lynch Tuesday night in the town of Nasiriya. All those involved in that rescue mission, like all those men and women in uniform who are serving their country in the Middle East right now, represent the best in word and in deed that this country has to offer.

It is against that backdrop of continued bravery and exemplary performance that we convene this session of the Airland Subcommittee to discuss the present status and the future, of tactical aviation. It is a humbling backdrop indeed. It serves to remind us of the importance of the issues raised in this subcommittee . . . that the decisions made, in part, in these chambers, may result in lives saved months or even years down the road in conflicts both prepared for and hardly imagined.

To this end, therefore, I would like to raise a few issues with our witnesses—issues that I hope this subcommittee will hear more about during its proceedings and the witnesses' testimony today.

First, I note with no small amount of dismay that the testing of the F/A-22 Raptor has been delayed. Last year the Air Force was predicting that the F/A-22 program—a program essential to future U.S. air superiority—would start operational testing and evaluation this month. Since that announcement there have been delays in two major areas: one, delayed aircraft deliveries have slowed the progress of the development testing leading up to initial operational testing and evaluation; and two, problems with the aircraft's software have proven harder to correct than anticipated.

Production costs have also increased. In fiscal year 2003, Congress provided more than \$4.6 billion for the production of 23 F/A-22 aircraft. After negotiating the contract for this year's aircraft, the Air Force has found that those funds will only buy 20 aircraft—a change caused by cost increases and the need to shift research and development (R&D) funds to support additional development and testing efforts. Now the Air Force intends to purchase only 22 of the aircraft in fiscal year 2004, down from the 27 it planned to buy at this time last year.

Moving to the Joint Strike Fighter, I note with disappointment that this program may also have hit a “snag.” Reports indicate that a critical weight problem has developed which needs to be addressed sooner rather than later. I would urge the Services and the contracting team to fix the problem now in such a way that will not create a “bow wave” of further complications as we approach delivery dates. Hasty weight reduction fixes have been responsible for substantial cost increases in other aircraft developments late in the program, and neither I nor my colleagues on this subcommittee want to see the same sort of mistakes be repeated to the JSF program.

Moving from platforms to capabilities, I would like to ask our witnesses what the Marine Corps and the Air Force plan to do about replacing the EA-6B Prowler electronic warfare aircraft. As we all know, the EA-6B is the world's premier electronic warfare aircraft and is vital for the suppression of enemy air defenses and the disruption of their communication capabilities. Precisely because of its superior abilities to decimate the enemy's ability to utilize the electronic ether to its own ends, the Prowler is a prominent member of the U.S. Armed Forces' “high demand, low density” asset community. The DOD sponsored an analysis to determine how to modernize the aging EA-6B and increase the assets' availability to deployed forces. As a result of this study the Navy has decided to develop an electronic warfare variant of the F/A-18. But it is much less clear what the Marine Corps and Air Force plan to do. I hope to hear from our representatives of the Air Force and Marines present today on their plans to fill this crucial operational niche in the near-to-middle distance future.

In addition to a substantial demand for airborne electronic warfare assets, the U.S. military is also experiencing a high demand for air-to-air refueling tankers. I was troubled to learn of press reports that carrier aircraft were literally stuck on the deck because the Iraqi front line has receded inland so quickly, and there aren't enough tankers to provide the required refueling stops. I would like to hear of the Services' plans to rectify this capability gap. I would also like to hear more information about the proposed leasing of 100 tanker aircraft from Boeing to replace 133 KC-135s.

The budget request includes retiring 43 of the KC-135s in fiscal year 2004, and another 20 or so through the FYDP. Given the high utilization of the tankers themselves, it seems premature to do away with this many high demand assets when their replacements are not yet identified. Indeed, although the Air Force has indicated that it was close to obtaining approval from the administration for a tanker-leasing plan, they have not yet submitted any plan to the Armed Services Committee. Senator Levin has already made it quite clear that he would argue against the adoption of any plan until the full committee was given the opportunity to review its details. I also know that Senator McCain has expressed strong reservations about such a proposal.

I firmly believe that tactical air support is one of the most demanding air combat roles a pilot can undertake. Indeed, flying extremely close to the ground while trying to identify friend from foe at blistering speeds is a daunting enough task to give anyone pause. However, on March 28 an American A-10 apparently attacked a small convoy of British Chieftain tanks and Scimitar armored vehicles from the Household Cavalry. Preliminary reports indicate that although the attack by the A-10 took place in a British-controlled area, although the British armor had ‘popped’ colored smoke to identify themselves to the aircraft, and although the tanks and ar-

mored vehicles had friendly markings applied to their exterior, the attack was pressed.

In the end one British tanker was killed and four injured in the attack. Given the importance of coalitions to our national security, and given that working with coalition partners, especially the British, will increasingly become the rule rather than the exception, I would like the witnesses to address the question of whether or not our procedures or training need to be updated to prevent such unfortunate accidents from recurring in the future.

Lastly, as the ranking member of this subcommittee which holds jurisdiction, in part, over the Air Force, as a long-time supporter of the military, as a Senator who has proudly nominated young women to our military academies, and as the father of two daughters, I feel it necessary to address current events at the United States Air Force Academy. I share my Armed Services Committee colleagues' deep concern and dismay over the way that that institution has handled allegations of sexual assault and misconduct at the Academy. While I support Secretary Roche's change of the top Academy leadership, I too must wonder aloud if this is too little, too late. The lives of scores of young cadets have been irreparably harmed so too has the spirit and core of the Air Force which has now lost some of its best and brightest through the wrong-doing of some of their classmates, and the failure of the leadership to take their allegations seriously. Senator Collins and I have already called for an independent investigation of the Academy. . . I am now proud to co-sponsor Senator Allard's amendment to the Emergency Defense Supplemental to create an independent board of inquiry to examine the decisions of the Academy leadership specifically, and the Air Force leadership more generally, concerning the allegations of sexual misconduct at the Academy. I await their findings.

Again, I would like to welcome the witnesses to this hearing, and thank you in advance for your candor.

Senator PRYOR. I want to thank our witnesses for being here, and I certainly appreciate everything that you all do. I cannot say another word without acknowledging the wonderful job our Armed Forces are doing in Operation Iraqi Freedom. It has really been amazing to watch the progress we have made in these last few days.

One thing I am proud of about the Senate Armed Services Committee is this commitment we have to try the best we can to work in a very bipartisan way. I think that there is a broad consensus on the Armed Services Committee, and certainly on this subcommittee as well, to enable the Department of Defense (DOD) to respond to the changes of the uncertain world we face.

The challenges are many. We know that you are going through a transformation process, a modernization process. We know that we are living in an ever-changing and dangerous world. We appreciate your commitment to the security of our Nation and the freedom of people all over the world.

One thing I would love to hear from each of you, as is appropriate, is testimony on the FA-22. I would like to get an update on that. I would love to hear about the JSF. I would love to hear about the replacement for the EA-6B and also the KC-135 lease proposal. I know those are four issues that we are all familiar with and I think this subcommittee would like to hear about them.

One thing I would like to emphasize is that this subcommittee and the full committee in the Senate will give a lot of attention to the Department of Defense and the needs of the Department of Defense. That attention is very appropriate considering all the challenges that you have. We are committed to maintaining our advantages and improving upon those. So we also acknowledge that our resources are limited. We are here to make sure that our resources are utilized in the wisest fashion possible.

So I look forward to hearing from you today and look forward to a frank and open discussion of whatever issues you have on your mind.

Thank you.

Senator SESSIONS. Thank you, Senator Pryor. I appreciate that. We are glad to have Senator McCain here. He is a national resource in a whole lot of ways. He has a vast history dealing with many of these issues that he knows of personally. I value his insight and counsel very much.

Do you have any comments to open with?

Senator MCCAIN. After something like that, it is best to remain silent. [Laughter.]

I thank you, Mr. Chairman. I thank you for holding the hearing. I thank the witnesses for being here.

Senator SESSIONS. All right. Mr. Young, do you want to start? We would be glad to hear your opening statements. I do not know if we have a timeline, but I think 5 minutes would be a good goal.

**STATEMENT OF HON. JOHN J. YOUNG, JR., ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION**

Mr. YOUNG. Thank you, Mr. Chairman, distinguished members of the subcommittee. I appreciate very much the opportunity to testify on our fiscal year 2004 tactical aviation programs.

Recently, I visited our sailors and marines in the Persian Gulf area. I am proud to report that the commitment that we made and Congress' support in fiscal year 2003 to focus our taxpayers' dollars towards improving current readiness has yielded strong dividends. Today we have over 70 ships, 370 tactical aircraft, and more than 55,000 sailors and 60,000 marines in theater. They are trained, equipped, and carrying out the Nation's will. Our prayers are with them.

The fiscal year 2004 budget sustains the enormous strides we have made in personnel and readiness and also attains a balanced approach to procurement and modernization, cultivating promising aircraft technologies, efficiently acquiring mature systems, and improving the maintenance of our existing systems. Through these steps, we have been able to increase the number of airplanes from the 89 indicated in the fiscal year 2003 budget request to 100 in the fiscal year 2004 budget request.

The fiscal year 2004 budget request proposes innovative and creative approaches to achieving greater combat air capability. First, the Department's initiative to integrate Navy and Marine Corps tactical aircraft will achieve significant reductions in procurement and operating support costs while achieving combat requirements and readiness levels.

Navy and Marine Corps tactical air (TACAIR) integration is enabled by improving the reliability and maintainability of current and future systems, reducing the maintenance pipeline by properly funding spares and depot maintenance, and enhancing the support of our deployed systems.

In another innovative step, the Department of the Navy has worked with the Air Force, the Office of the Secretary of Defense (OSD), and the Defense Advanced Research Projects Agency

(DARPA) to forge a joint unmanned combat air vehicle (UCAV) program. Clearly, unmanned air vehicles (UAV) will play a significant role in our future operations. We are developing a joint strategy with the Air Force, DARPA, and OSD for a UCAV program that meets our common requirements, while maintaining the flexibility to support service-unique functions. We will structure this effort to maintain competition among the UCAV contractors with the goal of a JSF-like acquisition strategy that results in the selection of a common platform with service-unique variants.

We are also continually advancing the current and future combat value of our airplanes. The Multifunction Information Distribution System (MIDS) provides the capability to share the airspace picture amongst all 16 linked ships and aircraft. The next step is evolving Cooperative Engagement Capability (CEC) to provide an enhanced, high-confidence air picture for systems like E-2C and other participants. A CEC-equipped E-2C with our Radar Modernization Program upgrade and our Evolving Extended Range Active Missile development will provide a transformational enabler against current and future cruise missile targets, particularly those operating over land.

The F/A-18E/F Super Hornet you mentioned is our principal tactical aviation recapitalization aircraft in the near term. The budget includes \$3 billion for 42 airplanes, the final installment of a fiscal year 2000 to 2004 multiyear procurement. Deliveries remain ahead of schedule. Three Super Hornet squadrons are already deployed in support of Operation Iraqi Freedom.

\$228 million has been allocated to procure two E-2C Hawkeyes, the first of a new 4-year multiyear procurement. This effort will keep the line viable as we march towards the E-2C Advanced Hawkeye with the Radar Modernization Program.

We are initiating the airborne electronic attack efforts on the F/A-18E/F, calling it the EA-18G, as an evolutionary means to leverage existing capabilities and replace our aging, low-density, high-demand EA-6B aircraft. Using the Super Hornet aircraft allows the Department to streamline the acquisition process and field a product sooner to the fleet.

Our partnership with the Air Force, Lockheed Martin, Pratt & Whitney, and General Electric has made affordability the cornerstone of the Joint Strike Fighter program. The fiscal year 2004 budget requests \$2.2 billion for continuation of Systems Development and Demonstration. The program is on track to deliver operational short takeoff, vertical landing (STOVL) variants to the Marine Corps in 2008 and the Navy variant in 2010. At Secretary England and Secretary Aldridge's urging, we formed a Configuration Steering Board for JSF. Secretary Sambur and I have a mandate to reject changes in the core program in order to give JSF a chance to deliver the initial system within the time and the dollars available.

To further realize acquisition efficiencies, we recently signed with the Air Force a contract to procure KC-130Js as part of a multiyear procurement seeking 20 additional aircraft for the Marine Corps.

I believe we have crafted a balanced and properly focused budget request that ensures our Nation will have an efficient infrastruc-

ture and an optimal force structure. The Navy and Marine Corps, sir, are professional and capable, the best in the world. With your assistance, we will continue to provide maximum capability for our sailors and marines and maximum security for America.

I thank you for the opportunity to testify today.

Senator SESSIONS. Thank you, Secretary Young.

Secretary Sambur.

Dr. SAMBUR. Yes, Mr. Chairman. Since I would like to give you the opportunity to ask the questions that you would like to ask and since I have a written statement for the record, myself and General Keys would like to forego our oral comments. If you can accept our written remarks for the record, it would be appreciated.

Senator SESSIONS. We would be delighted to do that. I have reviewed your remarks. I appreciate those very much.

[The prepared statement of Dr. Sambur follows:]

#### PREPARED STATEMENT BY DR. MARVIN SAMBUR

Chairman Sessions, Ranking Member Lieberman and members of the subcommittee: Thank you for this opportunity to discuss with you the Air Force's 2004 budget plan and to report to you on our efforts and progress on acquisition reform. General Keys and I are proud to come before you today and discuss our plan for maintaining the United States Air Force as the dominant air force in the world. Your support will be vital as we work together to ensure that we continue to deliver programs that support warfighter capabilities, which are needed to ensure victory.

Over the last year, we have been very successful in implementing new changes to the Air Force acquisition process and in providing increased capabilities to the warfighter. My staff and I have been diligently working to develop processes and enhance the culture within the Air Force acquisition workforce, so as to institutionalize these changes and ensure our air dominance.

We will continue to leverage the technology of this Nation to create advantages for our military forces and meet the challenges that we will face in the years ahead as articulated by the Secretary of Defense.

#### CHANGING OUR ACQUISITION PROCESS

The Secretary and Chief of Staff of the Air Force gave us a mandate to change the way we do business to deliver capability to the warfighter. From slipping development times, to reduced deliveries, to increased costs, programs have not met established baselines and goals. During this past year, I have been working to determine the root cause of these execution problems. The findings identify several factors that lead to poor program execution including: unstable requirements, faulty cost estimates, lack of test community buy-in, inadequate systems engineering, and unstable funding. For the Air Force, these program execution problems result in the average cost growth of 30 percent for acquisition programs and the doubling of the average procurement times.

Given the problems noted above and the resulting increases in program costs and delays in program schedules, I have formulated a series of policies to address the underlying causes.

First, in order to overcome our unstable requirements process, I have implemented an Agile Acquisition Policy that demands collaboration: that is active, cooperative dialogue between the warfighter, acquirer, and tester working as one team at the outset and throughout the requirements and development process. This will ensure that warfighter requirements are clearly articulated, the acquirers communicate what can be delivered and the testers understand what needs to be verified. Surprises are kept in check when the user provides a concept of operations up front and a consistent, continuous dialogue between all stakeholders provides a robust definition of a requirement, which the acquisition community can deliver and the tester can verify.

These changes set the goal of institutionalizing collaboration throughout the Air Force and DOD acquisition to include our operations, test and sustainment communities. Collaboration must start well before a product is delivered in order to control costs and to provide the user with the required capability. When the acquisition enterprise, consisting of the warfighter, acquisition, test, and sustainment communities, starts working together a better product is produced.

Second, I have addressed the issue of faulty cost estimates by instituting policy changes that will foster credibility within the acquisition community. Credibility means delivering what we promise, on time and on budget. In the past, we have designed our programs with a 60–70 percent confidence level of meeting cost, schedule, and performance goals. In order to be credible both to the warfighters and Congress, I have implemented a 90 percent confidence level in meeting our requirements.

By demanding collaboration between all the parties, we can ensure the right trade-offs are made throughout the acquisition process to meet the required goals. It is imperative that both the warfighting and acquisition communities work together to make tradeoffs of non-critical elements within programs to buy down risk throughout the acquisition cycle. Bottom line: credibility means delivering what we promise, on time and on budget.

Third, not having test community buy-in created problems further along in the acquisition process. As such, we have started to work with the test community on processes to reduce the number of serial events for testing. This is different from the current process of serial and overlapping development and operational testing, which can take several years. We are developing a seamless verification process to ensure that both the developmental test and operation test occur in a single process, not fragmented as it has been in the past. If the operational testers are involved early in the process, then they can assess the operational value of developmental testing and reduce duplication of effort.

Again, collaboration is a vital part of this process change. By involving all members of the acquisition enterprise early and continuously, we can all come to agreements on what are the operational requirements, what can be delivered and how we will verify the systems being built meet those needs.

Fourth, we need to instill an adequate systems engineering foundation within the acquisition process. Systems engineering is one of the bedrocks of sound management for acquisition programs as it ensures that contractor-proposed solutions are consistent with sound engineering principals. Decisions based on a solid systems engineering approach will ensure that our program managers will be better prepared to assess their programs' health and will help to keep programs on budget and schedule. As such, I am implementing a process by which all future Milestone Decision Authorities will not sign out any future acquisition strategy plans that lack the necessary attention to systems engineering. Additionally, I am demanding system engineering performance be linked to the contract award fee or incentive fee structures. This link will help ensure the industry will also follow a sound systems engineering approach.

Additionally, we are rebuilding our organic system engineering foundation to provide the necessary expertise throughout the Air Force acquisition community. Recently, the Center of Excellence for Systems Engineering has been opened at the Air Force Institute of Technology. Our goal is to create a reservoir of knowledge and source of best practices, which can be applied to our current and future acquisition programs.

Fifth, unstable funding is a constant problem, one that can be better managed by a more disciplined program-priority process while leveraging spiral development methods. Through our complementary processes to review warfighting capabilities and the associated execution of the programs comprising the capabilities, I firmly believe that we will have in place the ability to better manage funding instability. As funding perturbations, both external and internal, arise within our programs, our reviews will ensure that a disciplined process of flexing resources to programs that contribute the most to warfighting capabilities exists. This in effect will minimize the overall perturbation to programs that provide the most “bang for the buck” and eliminating our time-honored process of applying a “peanut-butter spread” to all.

#### SPIRAL DEVELOPMENT IS OUR PREFERRED ACQUISITION PROCESS

The Air Force has identified the spiral development methodology of acquisition as the preferred approach to acquiring systems. As the pace of technology has quickened, so must the pace of our acquisition process. Spiral development allows the Air Force to incrementally deliver weapon system capability quickly—providing the warfighter technology as it matures within acceptable program risk. As each spiral is more clearly defined and shorter in duration, schedules are better managed due to the shorter time exposure of the development process to internal and external change. Mutual expectations on spiral content, cost, and schedule are also commonly understood and agreed to up-front between all stakeholders, as collaborative practices are paramount to the spiral development process.



Spiral development will also assist in mitigating funding instability by allowing the service to compartmentalize each individual spiral such that a funding cut in the far term won't compromise a capability that is complete and ready to go to the field today. In the past our "big bang" theory of releasing weapon system capability to the field held all aspects of the weapon system hostage to any perturbation in the process. With spirals we release smaller, more tightly focused capability sooner, and minimize the risk of a long drawn-out development process being affected by funding instability in either the mid- or far-term.

Another beneficial spin-off of spiral development acquisition is the flexibility to insert the latest technology into the development and production lines. This is where the importance of a robust science and technology (S&T) capacity is crucial in truly reaping the benefits of a spiral release process.

#### CAPITALIZING ON SCIENCE AND TECHNOLOGY

Providing the warfighter solutions rests in large measure with research and development. Through robust investment and deliberate focus in S&T, the Air Force invigorates our core competency of providing technology-to-warfighting. Combined with innovative vision, S&T opens the direct route towards transforming air and space capabilities. Therefore we continue long-term, stable investment in S&T to ensure we realize future capabilities, as well as those that may immediately affect existing systems.

Some of these new technologies—UAV systems, laser-based communications, space-based radar, and others—show clear promise for near-term, joint warfighting applications. Others present opportunities we can only begin to imagine. We are exploring each of these technologies, and our investment will deliver the required capabilities to our seven Air Force concepts of operations (CONOPs).

#### ACQUISITION SUCCESS THROUGH NEW BUSINESS PRACTICES

The Air Force has also enacted new business practices from an integrated enterprise perspective, examining every process and process link. I have expressly given our people the latitude to make the right decisions by relaxing our past prescriptive policies. My implementation of a reality-based acquisition policy, which replaced the highly prescriptive Air Force Instruction (AFPD 63-1/AFI 63-101), provided guidance emphasizing innovation and risk management and will delegate decision authority to appropriate levels. Additionally, I have empowered our people through the use of high powered teaming with the warfighters, to deliver initial capability to warfighters more quickly, and add capability increments in future spirals.

Our transformation of acquisition practices are only the beginning of a comprehensive and aggressive approach to reforming business practices. Our efforts today will have a direct effect on efficient and effective air and space capability acquisition both immediately, and in the future.

#### INITIATIVES SHOW RESULTS

During the last year we have had several successes based on these principles outlined above. One such example is the Passive Attack Weapon. This weapon was developed as a result of a 180-day Quick Reaction Program at Air Combat Command, and was available to the warfighter at the 98-day mark. To date, we have delivered 58 weapons and completed all aircraft integration. Support elements have been delivered, and our seamless verification of the system is complete. Production was completed on time, with 15 percent more weapons delivered than originally proposed as we completed the program under budget.

#### WEAPON SYSTEM MODERNIZATION

##### *F/A-22*

The F/A-22, with its revolutionary combination of stealth, supercruise (i.e. supersonic cruise without afterburner), maneuverability, and integrated avionics, will dominate the skies. The F/A-22 will ensure U.S. air dominance against all projected future threats. In addition, when outfitted with the Small Diameter Bomb, the F/A-22's ability to penetrate an adversary's anti-access airspace and destroy his most critical air defense capabilities, will enable 24-hour stealth operations and freedom of movement for all follow-on forces—fully leveraging our Nation's asymmetric technological advantages. In 2001, flight-testing continued to demonstrate the revolutionary capabilities. Specifically, the F/A-22 successfully completed an AIM-120 guided missile launch, and initial radar detection range measurements (met specification requirements the first time out). On 14 Aug 2001, the Defense Acquisition Board approved the F/A-22's entry into low-rate initial production (LRIP). Entering

operational service in 2005, this transformational leap in technology is the linchpin to preserving the Nation's most important military advantage for the warfighter: the capability to rapidly obtain and maintain air and space dominance. The program continues to proceed toward full rate production. LRIP aircraft are well into the manufacturing process; contracts already awarded include Lot 1 (10), Lot 2 (13), Lot 3 (20), and advance buy for Lot 4 (~22).

The EMD program has been restructured to resolve the EMD shortfall within the overall F/A-22 budget. Funding was re-phased from modernization and production in fiscal year 2003 and from production in fiscal year 2004–fiscal year 2006. The modernization program was re-planned in concert with the warfighter to account for these changes while ensuring critical capabilities are brought on board when required. While the EMD shortfall and higher than anticipated Lot 3 aircraft costs did result in a revised estimate of 276 aircraft, it did not impact the Air Force's commitment to the "Buy-to-Budget" strategy. The Air Force is focused on successfully completing F/A-22 development and initiating Dedicated Initial Operational Test and Evaluation (DIOT&E). While currently scheduled to start in October 2003, DIOT&E remains event-based and we will not begin until we are assured of success. Our greatest remaining development challenge is avionics stability, yet we remain confident we will successfully resolve this issue.

Despite the issues above, F/A-22 program has made great strides in the past 6–9 months. Not only has the flight test program increased the test point burn down rate to the point where envelope expansion is back on track, but also the vertical fin buffet challenge has been resolved, and the cause of canopy howl has been identified and a repair plan developed. The program recently crossed the 3,000 hour cumulative flight hour milestone and has seven aircraft flying at Edwards and one at Nellis. Testing has also included 16 live missile launches (4 guided) and successful firing of the gun. Production processes during final assembly at Marietta continue to show improvement. Out of station work has been reduced significantly, part shortfalls are down 70 percent, and tool validation has been completed.

#### *F-35*

Acting in concert with the F/A-22 will be the F-35 Joint Strike Fighter. The F/A-22/F-35 force mix will balance affordability, capability and force structure—critical capabilities for the global strike concept of operations—to ensure sufficient quantities of advanced fighter aircraft to give the U.S. dominant force across the full spectrum of conflicts. The F-35 program will develop and field a highly common family of next-generation strike fighter aircraft for the Air Force, Navy, Marine Corps and our allies. The Air Force conventional takeoff and landing (CTOL) variant will be a multi-role, primary air-to-ground aircraft to replace the F-16 and A-10 and complement the F/A-22. While the F/A-22 will establish air dominance, the F-35—with its combination of stealth, large internal payloads and multi-spectral avionics—will provide persistent stealth and precision engagement to the future battlespace. The F-35 will carry a wide array of weapons, including J-series, AMRAAM and AIM-9X. It will be optimized for all-weather, air-to-ground employment, including direct attack on the most lethal surface-to-air missile systems. F-35 planned reliability and maintainability will enable an increase in sortie generation rate and mission reliability, and will reduce the logistics footprint as compared to legacy aircraft.

The F-35 program is in the second year of the SDD phase. The SDD program is employing a block upgrade approach, based upon an open system architecture, to provide early delivery of a basic combat capability followed by integration of additional avionics and weapons capabilities to support the services' initial operational capability (IOC) requirements in the 2010–2012 timeframe. Over the past year, the program has achieved several SDD technical milestones, including the Air System Requirements Review, the Integrated Baseline Reviews, the Propulsion Preliminary Design Reviews and, most recently, the Air System Preliminary Design Review for all three F-35 variants. The program is currently expected to meet or exceed all key performance parameter thresholds.

The F-35 program is on track to supply 1,763 CTOL aircraft to the Air Force and to meet the Air Force's IOC goal in fiscal year 2011. Maintaining this schedule will ensure the optimal balance between affordably replacing aging aircraft and providing the warfighter the required force structure.

The F-35 is the DOD's largest cooperative development program. In fiscal year 2002, the F-35 program successfully concluded SDD cooperation agreements with seven additional international partners: Canada, Denmark, the Netherlands, Norway, Italy, Turkey, and Australia. These countries, along with the United Kingdom, are contributing over \$4 billion to the SDD program. The Department is also negotiating with Israel and Singapore regarding their participation as security coopera-

tion participants. International participation in the F-35 program will help ensure maintenance of economies of scale, which will keep the F-35 affordable both in flyaway and support costs over the life of the program. Additionally, international participation in the F-35 program will promote appropriate U.S.-foreign technology sharing and bring the U.S. and our allies closer to the goal of full joint/combined warfare capability.

#### *Unmanned Combat Air Vehicle (UCAV)*

The UCAV vision is to develop an affordable weapon system that expands tactical, and perhaps strategic, mission options and provide a revolutionary new element in the air power arsenal. The UCAV weapon system will exploit the design and operational freedoms of relocating the pilot outside of the vehicle while maintaining the rationale, judgment, and moral qualities of the human operator.

The ongoing X-45 UCAV program is a joint Defense Advanced Research Projects Agency/U.S. Air Force effort being conducted in multiple overlapping spirals of increasing capability towards the UCAV vision. Spiral 0 consisting of X-45A air vehicle demonstrators, mission control system, and simulators are performing well at the NASA-Dryden Flight Research Center in CA today. Spiral 1, planned for delivery in fiscal year 2005, will integrate the intelligent multiple-vehicle coordinated operations demonstrated in Spiral 0 with a robust air vehicle design that offers increased range and payload. Future spirals will provide increasing capability to meet warfighter needs and enhance the effectiveness of integrated operations of manned and unmanned aircraft.

#### *F-15 Program*

The F-15 Eagle remains the USAF's lead air superiority and only all-weather deep interdiction aircraft well into this century. The deep interdiction version, the F-15E, provides night/through the weather air-to-surface attack, employing all USAF precision-guided munitions, including J-series weapons. The F-15 is heavily involved in Operations Enduring Freedom, Noble Eagle, and Iraqi Freedom.

The Air Force must maintain the F-15A-Ds' and F-15Es' abilities to fulfill their roles in light of the evolving threat and world situation. Several of the current modifications to the F-15 are an upgrade to the radar (the APG-63(V)1 radar upgrade) to address significant reliability obsolescence problems; an upgrade to the engine (the F100-220E engine upgrade) to address significant reliability problems; addition of a new mission computer (the Advanced Display Core Processor) to provide computing power to support future capability growth; an upgrade of the armament control system (the Programmable Armament Control Set upgrade) to support employment of J-series weapons; and addition of high-off-boresight targeting of sensors and air-to-air weapons (the Joint Helmet Mounted Cueing System) to improve survivability in within-visual-range air combat.

A recent success story of the program is the fielding of Litening ER pods to support current operations. Following the Chief of Staff's direction, the Air Force completed a 90-day evaluation of the Litening pod in December 2002 on F-15E aircraft. Positive evaluation results led to direction to procure and field 24 pods. Funding reallocation and congressional approval were accomplished within 2 months, and pod deliveries began in January 2003. There are currently 16 pods in-country supporting Operation Iraqi Freedom, and the balance will be delivered to the Air Force by 31 March 2003.

#### *F-16*

The F-16 is the Air Force's principal multi-role fighter and is the largest Air Force and international sales procurement program with over 4,000 produced for service, encompassing 23 countries. It is currently operating within the Active, Reserve, and Air National Guard Forces. The F-16 is a single-engine, multi-role, tactical fighter, with full air-to-air and air-to-ground combat capabilities. The F-16 comprises over 50 percent of the precision engagement fighter force and is the Air Force's primary Suppression of Enemy Air Defense (SEAD) platform. It is extensively deployed with various ongoing operations to include Operations Noble Eagle, Enduring Freedom, and Iraqi Freedom.

The F-16 is currently projected to be in service beyond 2020. Several key modifications are underway to ensure the Fighting Falcon remains a key combat enabler. The Falcon Structural Augmentation Roadmap (Falcon STAR) is a structural modification for achieving an 8,000-hour component service life. Installation is programmed for fiscal year 2004 through fiscal year 2014. The Common Configuration Implementation Program (CCIP) modification will improve the avionics commonality between the Block 40 and 50 aircraft. It combines five modifications into one modification; thereby reducing the number of times a jet is opened and maximizing configuration control. Further, it combines the Block 40 and 50 Operational Flight Pro-

grams (OFPs) into common OFPs. The CCIP modification is timed with the Air Expedition Force schedule with installations running through fiscal year 2010. Lastly, the Combat Upgrade Plan Integration Details (CUPID) modification will incorporate GPS, data link, night vision, and countermeasures into Block 25 through 32 aircraft. We expect to complete CUPID in fiscal year 2003.

#### *Small Diameter Bomb (SDB)*

SDB will provide the following capabilities to the warfighter: Increased number of kills per pass; combat effective in adverse weather; minimized collateral damage; autonomous target attack; enhanced (>40nm) weapon standoff range; reduced logistic footprints and aircraft generation times. SDB will be compatible with the following current platforms (F-15E, F-16, F-117, A-10, B-1, B-2, B-52), and is planned for next generation platforms (F/A-22, F-35, UCAV, Predator B). Boeing and Lockheed Martin are currently competing in the 2-year computer-assisted design (CAD) phase with a downselect expected to occur in September 2003. LRIP will start in fiscal year 2005 with a planned RAA on the F-15E in fiscal year 2006. The SDB Threshold Platform is the F-15E, although F/A-22 is a major focus item in support of the global strike CONOPS. SDB will be a pilot program for seamless verification, which is intended to maximize development, operational, and contractor test resources in conducting an effective test program in support of warfighter requirements, while minimizing test-related cost and schedule.

#### *Joint Standoff Weapon (JSOW)*

The Joint Standoff Weapon is a joint Air Force-Navy program, with the Navy as the lead service. JSOWA, INS/GPS precision glide weapon that the Air Force is procuring, is designed to attack a variety of area targets—fixed, relocatable, and mobile targets—during day, night and adverse weather conditions. JSOW enhances aircraft survivability as compared to current interdiction weapon systems by providing the capability for launch aircraft to stand off outside the range of enemy point defenses. The F-16, B-52, and F-15E are now capable of delivering JSOWA and the B-2 will again be capable of carrying the weapons by mid-April 2003. The weapon will also be integrated on the B-1 and F-35.

Last year the Air Force decided to withdraw from the JSOWB program to service armored targets and begin development of an Extended Range Wind Corrected Munitions Dispenser (WCMD). The decision to add a wing kit and GPS to WCMD enhances the weapon's capability and leverages the existing inventory of tactical munitions dispensers. The new weapon will significantly contribute to the Air Force's warfighting capability. The new area attack munitions mix is based on the acceleration of JSOWA, the Sensor Fuzed Weapon and the WCMD-ER. Joint Air-to-Surface Standoff Missile (JASSM).

The JASSM is a "kick down the door" type weapon to be used in the early stages of a war to neutralize enemy's defenses and war infrastructure by targeting high value, fixed and relocatable targets. JASSM's standoff range is greater than 200 NM. It is a conventional, precision, autonomous, low observable missile with a 1,000 lb penetrator and blast/fragment warhead. JASSM is all weather capable using GPS/INS guidance and an Imaging Infra-Red (IIR) terminal seeker.

JASSM began LRIP in fiscal year 2002 with a buy of 76 missiles. Deliveries will begin in April 2003. The B-52 will be the first aircraft to reach RAA (required assets available) in September 2003. B-2, B-1, and F-16 will follow in fiscal year 2004. The JASSM test program was recently stopped after two free flight anomalies. Those issues have been addressed and the USAF is confident they are fixed. The final JASSM DT test is scheduled for late March; OT will be resumed if that test is successful. The test program will be complete in July allowing JASSM to have a full-rate production milestone decision in November 2003.

JASSM-Extended Range (ER) is a spiral development program that will increase the range capability to greater than 500 NM. JASSM-ER will start development in late fiscal year 2003 with congressional plus-up funds. Development will end in fiscal year 2007 when the program will enter production with the first deliveries in fiscal year 2008.

#### *MC2A*

The MC2A will provide rapid machine-to-machine integration of information from manned, unmanned and space-based sensors. The MC2A is the next generation wide area surveillance platform designed to provide a near real-time, horizontally integrated view of the air and surface battlespace through the use of advanced sensors, network centric systems and high-speed, wide-band communications systems. The platform will be a key enabler to engage time sensitive targets with precision accuracy.

Spiral 1 capability is funded to include next generation Ground Moving Target Indicator (GMTI) for counterland mission capability, focused Air Moving Target Indicator (AMTI) supporting Cruise Missile Defense (CMD), an open system architecture for the Battle Management, Command and Control (BMC2) mission suite subsystem and growth potential for UAV control, space-based radar interface and intelligence, surveillance, and reconnaissance (ISR) management functions.

Future spirals are envisioned to incorporate transformational horizontal integration and C2 Constellation battle management functions, an advanced AMTI sensor, UAV control, space-based radar integration and laser communications. Available technology will determine if combining GMTI and a 360-degree AMTI sensor on a single aircraft is possible, or whether the 360-degree AMTI sensor will be hosted on a second MC2A configuration.

#### CONCLUSION

The Air Force remains focused on providing the necessary capabilities to the warfighter in order to win America's wars. These capabilities can only be achieved through effective and efficient management during the development, production, and fielding of systems. By incorporating a strong collaborative process, re-establishing our credibility, implementing spiral development, and infusing systems engineering in our acquisition process, we can overcome the tough challenges ahead.

Through our new business practices, we are providing our workforce with the tools to make decisions and changes, but this is not enough. The Air Force must provide strong support to program managers and the necessary latitude to manage systems development, production, and sustainment with limited interference. Only then can we meet the agile acquisition needs of our warfighters.

Given the limited budget and increasing needs, this is a challenge that must be met head on. We are committed to pursuing those actions necessary to make transformation work.

I appreciate the support provided by Congress and look forward to working with this subcommittee to best satisfy our warfighter needs in the future.

Thank you for the opportunity to provide this statement for the record.

Senator SESSIONS. Admiral Nathman?

#### **STATEMENT OF VICE ADM. JOHN B. NATHMAN, DEPUTY CHIEF OF NAVAL OPERATIONS FOR WARFARE REQUIREMENTS AND PROGRAMS**

Admiral NATHMAN. Senator Sessions, distinguished members.

I will take a few minutes to talk about some maybe obvious things. The current conflicts with Iraq and Afghanistan, I think, are pointing out some clear attributes that the naval service needs to be focused on. Those would be: What can we do to improve our range and our access to the battlefield? What type of multi-mission capability are we going to bring in our aircraft, weapons systems, and weapons to cover the target sets that are required to be covered from, as you saw today, close air support for British coalition maneuver, Marine maneuver, Army maneuver? Then what can we do to make sure that we are on the right path to provide persistent intelligence, surveillance, and reconnaissance of that battle space so it can be shaped properly? Then as you would expect, can we do it in the most affordable and efficient manner that we can?

I think you will see in the program of record at least a validation that that is the right path for us to be on. The Super Hornet, the E/F, is currently in combat today on the U.S.S. *Lincoln*. Two squadrons are also closing—two squadrons of Super Hornets, the E and the F, are embarked on the U.S.S. *Nimitz*, which chopped into the U.S. Central Command (CENTCOM) area of responsibility (AOR) today and soon will be into the Persian Gulf.

That aircraft brings with it the affordability of a multiyear procurement. It brings with it significant combat reach. It is better shaped for access. It has the ability to grow the right stuff in it,

advanced electronically scanned radar, which gives it simultaneous air-to-ground and air-to-air capability.

The other thing the aircraft is going to bring with it is that it puts a mission tanker back on our flight decks. We have been missing that for some time. Since we stood down the A-6 and the KA-6, our tanking now is done primarily with the support of the United States Air Force. What we are doing in Iraq, particularly in northern Iraq, would be impossible without the tanker bridge that we have with the Air Force. So it is important for the Navy to put a mission tanker back on its flight deck. Super Hornet brings us that mission tanking capability.

The other thing I think you are seeing is the affordability. The Joint Strike Fighter was designed with affordability in mind. Not only is it a system of airplanes for the Air Force, the Marine Corps, and the Navy, in terms of common avionics and common weapon systems, but there soon will be common training, I assume, and a common training place for the Joint Strike Fighter in the future.

We have recently integrated the tactical aircraft squadrons with the Marine Corps. We did that for several reasons. One was affordability, the ability to generate additional funds for the future. You will see that in our reduced multiyear procurement of F-18E/Fs along with Joint Strike Fighters, giving us the capability to invest in other aircraft, specifically the F-18G, the Growler, the electronic attack version, which is important to the Navy and the naval service in terms of having the right electronic attack shaping the battle space for the concept of operations that we fly in our embarked air wings.

So I appreciate your time and look forward to your questions, sir.

Senator SESSIONS. Thank you.

Lieutenant General Hough.

#### **STATEMENT OF LT. GEN. MICHAEL A. HOUGH, USMC, DEPUTY COMMANDANT FOR AVIATION**

General HOUGH. Thank you, sir. Good afternoon, Chairman Sessions, distinguished members of the subcommittee. It is a privilege and honor to speak to you today about tactical aviation in the Marine Corps.

On behalf of all marines and their families, I want to thank you for your continued support to Marine aviation and the Corps as a whole. The commitment to increase the warfighting crisis response capability of our Nation's Armed Forces and improving the quality of life of our men and women in uniform is central to the strength of the Marine Corps and has contributed immeasurably to our accomplishments on the global war on terrorism.

Marine Corps aviation provides the Marine Air-Ground Task Force (MAGTF) and the joint force commander with the aviation combat element capable of conducting air operations as part of a naval expeditionary force throughout the six functions of Marine aviation. The unique expeditionary and adaptable nature of Marine aviation is an integral part of the Marine Air-Ground Task Force and allows us to operate efficiently and effectively across the full spectrum of basing operations and makes us an adaptable, highly responsible and lethal force, and we are proving it every day in Operation Iraqi Freedom.

Today, nearly 85 percent of Marine aviation is deployed or committed worldwide. 59 percent of Marine TACAIR and 58 percent of our rotary wing aircraft are committed to the Central Command for operations in Iraq or Afghanistan with 84 Hornets, 88 Harriers, 10 Prowlers, and 259 helicopters. Three FA-18 squadrons are deployed with carrier air wings. One additional FA-18 squadron is in the work-up cycle preparing to deploy very shortly.

Since the commencement of the operation in Iraq, which has not been too long, Marine aviation from the sea base and from land has flown over 2,800 fixed wing sorties and over 900 rotary wing sorties. It has dropped almost every type of air-to-ground munition in the naval aviation inventory.

Our 6 Harriers in Bagram Airbase, Afghanistan, which have been there since October, are equipped with a litening targeting pod, which has been performing absolutely magnificently. It has flown over 600 sorties and over 1,800 hours, supporting special ops forces for Operation Enduring Freedom. It has also demonstrated extra flexibility with short takeoff/vertical landing on that busted-up runway.

Our 76 Harriers in Iraq are also performing magnificently. Deployed in the sea base and on land, they are moving forward from base to base, closer to Baghdad, closer to the sound of guns, and will provide increased time on station, faster response times, in support of our joint and coalition ground forces. Also equipped with a litening pod, the Harriers became the platform of choice for urban, close air support in Iraq.

Marine aviation is healthy. I could not be prouder of the job our aviation marines are doing. Currently, though, we are facing a period of great change over the course of the next 10 to 15 years, as you well know. Everything we have in Marine aviation, absolutely everything we have, is going to be turned over or changed. One thing is certain: Marine aviation is transforming and transitioning, but the thing that will not change is the professionalism of our expeditionary culture.

This change includes TACAIR integration, aircraft transformation and transition, Marine air command and control, modernization, and implementation of the simulator master plan. We are making every effort to increase our efficiencies and effectiveness as we go through this transformation and do it as a naval team partner.

You have read about TACAIR integration and heard a lot about it. It retains our culture. It is not a new concept. We have been doing it for a long time, but on a smaller scale. It is a more capable and a more affordable force. It ensures TACAIR support to the MAGTF while allowing global sourcing to all TACAIR assets, increased combat capability forward in concert with the sea basing concept, and reinforced expeditionary.

Naval TACAIR with a smaller, more efficient force will continue to provide combatant commanders and joint force commanders with a flexible, scalable, full spectrum response capability from the sea.

We are working together all the time in such a way that the whole is much greater than the sum of the parts. It is about synergy and getting more bang for the buck.

Aircraft transformation transition: We have been working for almost 30 years to do this. We are finally there. We went from 30 to 23 to now 7 platforms. We continue to modernize our existing aircraft to ensure readiness and warfighting relevance. Our key to success will be the careful balancing of people and equipment that allows us to maintain combat readiness throughout the transformation. The overarching intent is to maintain relevant forces while reducing the logistics burden on the commander.

Marine air command and control system modernization, that is the key to it all. It links it all up, ties it together operationally. Aviation command and control continues to be decisively engaged in support of coalition, joint, and MAGTF operations. The Corps has embraced a bold vision for the convergence of capabilities, organization, doctrinal training, and personnel. The integration of this 21st century capability will exponentially increase our capability to fight jointly and with our coalition partners.

The Marine Corps simulation master plan is 21st century. It is the way everyone else does it. It is the way we are going to do it. It is more efficient, more effective. It saves big money. It is not about money; it is all about money.

The Marine Corps and Marine aviation as a partner in the naval team has clearly lived up to the reputation of "first to the fight and first to fight." We remain ready for combat when and where the need arises. Marine aviation has been and will continue to be ready to deploy a scalable, highly trained, task organized expeditionary aviation combat element, capable of conducting missions across the continuum of conflict in support of the Marine air-ground team. It supports also the joint force or combatant commander.

In a world of diminishing host nation support, basing options and sovereignty, the ability to provide the Nation with self-contained MAGTFs capable of executing a wide range of missions at a moment's notice from a variety of locations will remain the Marine Corps hallmark.

For all that and more, I thank each and every one of you for your continued support for Marine aviation. It has been an honor to address you today. Sir, I look forward to your questions.

Senator SESSIONS. Thank you. Very well said, and we appreciate your comments.

[The joint prepared statement of Mr. Young, Admiral Nathman, and General Hough follows:]

PREPARED JOINT STATEMENT BY HON. JOHN J. YOUNG, JR., VICE ADM. JOHN B. NATHMAN, USN, AND LT. GEN. MICHAEL A. HOUGH, USMC

Mr. Chairman, distinguished members of the subcommittee, thank you for this opportunity to appear before you to discuss the Department of the Navy's fiscal year 2004 budget request for tactical aviation. VADM Nathman, LtGen Hough, and I are proud to come before you today to outline our most recent efforts to enable the Department of the Navy to field the most capable and lethal tactical air force in the world.

I recently visited our sailors and marines in the Persian Gulf area, including Kuwait and Bahrain, and we can rest assured that our sailors and marines guard our freedom with a dedication born from a voluntary commitment to defend the ideals of our founding fathers. It is my pleasure to outline the contribution that we in the Navy and Marine Corps acquisition community are making to enable the Department of the Navy to field the most capable, mobile and lethal force since its inception over 225 years ago.



The global war on terrorism has fundamentally changed the national debate on defense. To meet this challenge, difficult decisions were required to find the optimal mix within the portfolio of naval responsibilities, and within that, tactical aviation requirements of the Department. We have been good stewards for the taxpayer by demonstrating creative thinking such as utilizing the inherent growth capabilities of the F/A-18E/F to meet the airborne electronic attack requirement; making sound fiscal decisions including integrating Navy and Marine Corps tactical aviation assets to achieve significant reductions in procurement and operating support costs; reviewing the need for some of our legacy systems; and leveraging these actions to increase the number of aircraft being requested in the fiscal year 2004 budget. By addressing key issues such as the cultivation of promising aircraft technologies, cost effective acquisition of mature systems, and improved maintenance of existing systems, we have been able to increase the number of aircraft from 89 in last year's budget request to 100 in the fiscal year 2004 budget request.

In striving to provide the warfighter with the latest capabilities, we have adopted the tenets of Naval Vision 21 and Naval Transformation Roadmap 21. In doing this, we have engaged in a full assessment of naval S&T funding to ensure we have addressed all technology needs to support these transformation mandates. To this end, technology demonstrations are planned using Future Years Defense Program funds that aim to meet the needs of our forces—stretching from the ocean floor to the edge of space, and from facilities in the United States to the tip of the spear throughout the world.

Our actions to get the best value reach beyond the Department of the Navy. For example, the Department has worked in partnership with the Air Force on the JSF program to deliver an affordable and supportable strike fighter. Recently, we have also developed a joint strategy with the Air Force to develop an UCAV. UCAV will be a critical part of our future tactical aviation force structure.

#### ENHANCING WARFIGHTING CAPABILITIES

The Navy and Marine Corps team is the greatest maritime force in the world, but it is imperative that we transform our tactical aviation warfighting capabilities to meet the emerging challenges of the 21st century. We are changing and initiating programs to improve the warfighting capability of current and future forces. Furthermore, we are seeking joint opportunities and options wherever possible in taking these steps.

Our plan capitalizes on ideas that facilitate our recapitalization goals. An excellent example is the JSF, a stealthy, multi-role fighter aircraft designed to be an enabler for Naval Power 21. JSF replaces the Navy's F-18A/C variants and the Marine Corps' AV-8B Harrier and F/A-18A/C/D aircraft while complementing the Navy's F/A-18E/F Super Hornet. JSF offers dramatic improvements in affordability and supportability. The JSF program has partnered with Lockheed Martin, Pratt and Whitney and General Electric to make affordability the cornerstone of the program by reducing development, production and total ownership costs. Furthermore, we have imposed a discipline on ourselves that limits change during the critical phases of our major aviation procurement programs. This disciplined approach has been implemented in the JSF program through a Configuration Steering Board. By controlling the scope and timing of change in a planned manner, we know what changes will cost, and how we will pursue them in the most economical manner. Through these transformational business initiatives, the Department will emerge with an optimal force structure, a healthy industrial base and an efficient and appropriately sized infrastructure.

A critical enabler of transformational intelligence, surveillance and reconnaissance, the E-2C Advanced Hawkeye Program will provide a robust overland capability against current and future cruise missile-type targets.

The KC-130J Hercules will also be a critical enabler of the Department and the joint warfighter. The KC-130J's increased range, payload, and survivability will provide an enhanced aerial refueling capability and subsequently greater strategic agility, operational reach and tactical flexibility.

As the global war on terrorism has demonstrated, unmanned technology will play an ever-increasing role on the 21st century battlefield. The Department is committed to fielding an array of UAV programs, including tactical UAVs, maritime surveillance UAVs and an UCAV initiative, developed in partnership with the Air Force. The Navy and the Air Force have been able to define a common set of science and technology requirements while also recognizing the unique needs of each Service. This work will support a competitive acquisition strategy for UCAV. UCAV is a critical tool for providing persistent surveillance and combat capability for sea based Navy platforms.

## CHANGING OUR BUSINESS PRACTICES

The Department of the Navy remains committed to simplifying the acquisition system, streamlining the bureaucratic decision making process, and promoting innovation. We are streamlining our regulations and instructions to remove unnecessary impediments and provide the maximum flexibility to our acquisition workforce consistent with law and higher regulation. We are also continuing to take advantage of numerous acquisition initiatives to shorten cycle times, leverage commercial products and capabilities, and improve the quality of equipment being provided to our warfighters.

In an environment where competition is limited, the structure of contracts is critical to providing tools for the program manager to use in delivering aircraft and weapons on schedule and within budget. The Department is applying new contract strategies in an effort to focus greater attention on cost and schedule. We are implementing broken or stepped profit share lines to ensure that the Navy and industry are very focused on the cost target and that industry is rewarded for beating the target and penalized for exceeding the cost target. Further, we are shifting greater portions of fee to be awarded on an incentive basis upon accomplishment of critical path tasks. Finally, we are weighting fee towards the critical events at the end of a program that result in the desired goal—delivery of aircraft and weapons.

Evolutionary acquisition techniques show promise in programs such as the F/A-18E/F Program. Recognizing the requirement to replace our aging low density/high demand EA-6B aircraft with a platform that best accommodates the airborne electronic attack mission, the Navy identified the Super Hornet as the most viable candidate with which to leverage existing capabilities inherent in naval aviation in order to streamline the acquisition process and field a product sooner to the fleet. We leverage industry involvement in our acquisition programs to reduce our research and development costs and gain economies in production. The Department is also actively improving its internal business practices, including integrating commercial best practices where feasible. By improving these practices, we expect to be able to shift more dollars into combat capability and quality of service.

We believe that better information makes for better decision making, both on the battlefield and at the budget table. We have four pilot programs in place utilizing enterprise resource planning (ERP) which aim to improve the quality of information available to our decision makers. These pilot projects will eliminate dozens of incompatible computer databases and the business processes that once supported those databases. ERP should produce financial and managerial information that is more complete, accurate and timely. ERP will allow greater efficiency in our ship maintenance processes that should in turn deliver more ship availability for training or deployment. Our recent focus has been on converging the pilot programs to achieve even greater synergy of management information across a broader spectrum of the Department, and working with the DOD Comptroller to ensure these efforts are advancing the uniform business management architecture under development.

In addition to better information, we need flexible and innovative tools to help manage the Department. Some of these tools, such as strategic sourcing, are being used already. Furthermore, competition helps achieve the best quality support to the sailor and marine at the lowest possible cost by introducing the discipline of the marketplace. Another approach we are taking to improve logistics support to the warfighter and reduce total life cycle system costs is through Performance Based Logistics (PBL). This year, all ACAT I & II fielded programs and all new programs submitted PBL implementation plans with milestones. PBL has been successfully implemented on numerous weapon system components (improving capability and lowering costs) and the intention is to expand these successes to major weapon systems and subsystems. We are also continuing to pursue depot maintenance partnerships between the private and public sector. These partnerships provide increased capability to our depots while simultaneously reducing cost and improving warfighter capability.

The Department of Navy has experienced success with the Lead Systems Integrator (LSI) concept. An example of the LSI concept is the F/A-18 and Boeing. As the LSI, Boeing brings with it visibility, knowledge and responsibility at the weapon systems level, which is much broader than that of its subcontractors. Even though there may be additional "upfront cost" in the form of pass-through costs associated with this approach, the benefits of efficiencies and effectiveness over the full life of the weapon system, makes the LSI approach a very attractive tool.

We are working hard to ensure that our sailors and marines get needed technology in their hands today, not tomorrow. In areas ranging from Forward Looking Infrared (FLIR) upgrades for Marine Corps tanks, to ISR tools, to active anti-air warfare missiles, we are seeking greater jointness and taking advantage of prior

DOD investments in order to reduce risk, lower cost, accelerate delivery, and provide greater interoperability.

#### FOCUSING ON OUR PEOPLE AND ORGANIZATION

To enable development of new capabilities and facilitate the adoption of new business practices, a number of organizational changes have been made. I reorganized my business process owners by combining the Director of Acquisition and Business Management with the Acquisition Reform Office into a single Deputy for Acquisition Management. This new office focuses on business policy and implementation and infuses it with the innovative thinking and ideas of the office dedicated to reforming the way we do business. One of the primary goals of this reorganization is to shorten the time it takes new ideas to find their way into our acquisition business practices. The Deputy for Acquisition Management is directly supporting the DOD effort to streamline the Office of the Secretary of Defense policy and processes for major weapon systems embodied in the new DOD 5000 series directives.

In order to improve logistics support to the warfighter, I established a Deputy for Logistics. The logistics office will coordinate efforts to insert logistics considerations early in the acquisition process where over 60 percent of the total life cycle costs are determined. Equally important, logistical support of our current systems is a costly and complex part of today's acquisition management task. Finally, the Deputy for Logistics will play an important role in guiding the implementation of ERP across the Department.

In today's environment, many technologies and systems cut across program, platform and systems command boundaries. To leverage the expertise within our systems commands and ensure consideration and coordination of concepts that cross program boundaries, we created a virtual systems command. Each of the commanders will now work together to avoid duplication of capability and ensure that we achieve integration and interoperability benefits wherever possible within the Navy and Marine Corps.

Equally important, we are reshaping the acquisition workforce to concentrate on mission critical functions. These human resource plans call for an analysis of key characteristics of the acquisition workforce, an assessment and projection of changes in the workforce into 2008, and the identification of human resource process shortfalls that inhibit the ability to effectively manage this workforce. With the advent of civilian personnel "demonstration" programs with pay banding and the increase in outsourcing of commercial functions, we are seeing an emerging workforce that will be compensated based on their level of responsibility and contribution. Through enhancements to our career development program, which include continuous learning activities that augment minimum education, training, and experience requirements, we are developing our acquisition professionals to be better managers and leaders.

#### NEW OPERATIONAL CONCEPTS

Beyond incorporating new capabilities that technology advances allow, we examined methods for achieving greater utility out of our existing assets. The result of this effort is the Department's initiative to integrate Navy and Marine Corps tactical aviation capabilities. This integration represents one of the most sweeping changes in years. A comprehensive study of overhead requirements was performed as an integral part of a Tactical Aircraft or TACAIR Integration initiative that led to significant reductions in overhead. Substantive efficiencies will be realized through increased reliability and maintainability, commitment to properly fund readiness, spares, depot maintenance and modernization, improved simulation training, and a lower historical attrition than were programmed in the fiscal year 2003 program of record. Navy and Marine Corps TACAIR Integration will maximize forward deployed combat power and optimize the core capability of naval aviation forces. Its positive impact will be felt across the Department's entire tactical aviation enterprise, from leaner, more capable fighting formations to streamlined procurement requirements (tactical and training) and manpower savings.

This initiative will integrate one Marine Corps strike fighter squadron into each Navy carrier air wing and three Navy strike fighter squadrons into the Marine Corps Unit Deployment Program (UDP) rotation. These actions will allow three active Navy squadrons to be disestablished and two Reserve squadrons (one Navy and one Marine Corps) to be disestablished. Our plan will reduce procurement objectives for F/A-18E/F from 548 to 460 aircraft and the JSF from 1,089 to 680 aircraft. In total, this innovative program promises to save \$975 million over the fiscal year 2004—fiscal year 2009 program, and provide approximately \$19 billion in cost avoidance from fiscal year 2007—fiscal year 2012. Through increased modernization and

readiness an integrated Navy—Marine Corps aviation force will provide increased flexibility of employment and surge capability to combatant commanders that the Department cannot approach today.

#### TACTICAL AVIATION ACQUISITION PROGRAMS

The Department's fiscal year 2004 budget will utilize multiyear procurement (MYP) arrangements for the F/A-18E/F (both airframe and engine), and the E-2C to maximize the return on our tactical aviation investment. Our proposed plan will procure 44 tactical, fixed wing aircraft (42 F/A-18E/F, and two E-2C), continue the development of the F-35 and E-2C Advanced Hawkeye and initiate an airborne electronic attack (AEA) aircraft follow-on effort with the EA-18G.

##### *F/A-18A/C/D*

The fiscal year 2004 budget request contains \$27 million for the upgrade of our F/A-18As. The Marine Corps has initiated the upgrade of 46 F/A-18As (with a program objective of 76) to Lot XVII F/A-18C aircraft capability as well as digital communications and tactical data link. The Marine Corps anticipates programmed upgrades to enhance the current capabilities of the F/A-18C/D with digital communications, tactical data link, and tactical reconnaissance systems. This upgrade ensures that our F/A-18s remain viable and relevant in support of TACAIR Integration and Expeditionary Maneuver Warfare until replaced by the STOVL JSF. The Marine Corps expects the F/A-18A to remain in the active inventory until 2015 and is exploring the feasibility of placing listening targeting pods on our F/A-18D aircraft. This new capability can provide real time video to the ground commander via the Pioneer UAV Transmitter and Man-Portable Receiving Station.

##### *F/A-18E/F*

The fiscal year 2004 President's budget requests \$3.03 billion for 42 F/A-18E/F aircraft for the fifth year of a 5-year MYP contract (fiscal year 2000–fiscal year 2004). The Super Hornet has used a spiral development approach to incorporate new technologies, such as the Joint Helmet Mounted Cueing System, Advance Tactical Forward Looking Infrared System, Shared Reconnaissance Pod System, and Multifunctional Information Distribution System data link. The Super Hornet provides a 40-percent increase in combat radius; a 50-percent increase in endurance and 25-percent increase in weapons payload over our older Hornets. Three Super Hornet squadrons are already deployed in support of current operations. The F/A-18E/F is a significant step forward in improving the survivability and strike capability of the carrier air wing.

##### *F-35 Joint Strike Fighter (JSF)*

The fiscal year 2004 budget request contains \$2.2 billion for continuation of SDD on the JSF. The JSF will enhance our Navy precision with unprecedented stealth and range. The JSF program commenced SDD in October 2001 and is on track to deliver operational STOVL variants to the Marine Corps in 2008 and the Navy variant in 2010. The STOVL JSF combines the multi-role versatility of the F/A-18 and the basing flexibility of the AV-8B, resulting in a stealthy, lethal, state-of-the-art aircraft. The commonality designed into the JSF program, along with advantageous procurement quantities will reduce acquisition and operating costs of Navy and Marine Corps tactical aircraft and allow enhanced interoperability with our allies and sister services. To maintain affordability, the Department will manage requirement growth using a senior oversight group as well as other methods.

##### *AV-8B*

The AV-8B that we fly today is not the same aircraft that we flew 10 years ago. Over the last decade, the Harrier has gone from a day VFR air-ground attack aircraft to a night-adverse weather precision strike platform. The AV-8B remanufacture program has updated the Harrier into a more capable and more reliable aircraft. The wing and many original items are retained, but a new fuselage, a night-attack avionics suite (NAVFLIR, digital moving map, color displays, NVG lighting), APG-65 multi-mode radar, and the more powerful and reliable Pegasus (408) engine have been added. In addition to the AV-8B being one of the newest airframes in the fleet (average fleet age is approximately 8 years old), the remanufacture program provides an additional 6,000 hours of airframe life for 80 percent of the cost of a new aircraft. The remanufacture of 74 aircraft is programmed through fiscal year 2003 with the last delivery scheduled for September 2003. Our AV-8B Harriers at Bagram Airbase, Afghanistan, have flown over 500 sorties and over 1,500 flight hours supporting Special Operations Forces for Operation Enduring Freedom (OEF) and have demonstrated the expeditionary flexibility of STOVL aircraft while becom-

ing the most forward deployed tactical aircraft in theater. From their austere base located over 5,000 feet above sea level, the Harriers provide close air support, armed escort of aircraft and vehicle convoys, and air cover during helicopter insertions and extractions. Approximately 90 percent of our Marine Harrier gun squadrons are currently deployed and either in action or on watch around the world. The Harriers are equipped with the litening targeting pod, a targeting system with real-time video capability that gives the pilots the ability to laser designate targets for precision munitions and mark spots on the ground with infrared energy. The precision capability to spot targets and self-designate for precision weapons has put the Harriers in Afghanistan in high demand—joint and coalition forces regularly request the litening targeting pod capability in order to accurately locate and identify enemy positions. The enhanced AV-8B will continue to be a relevant platform until TACAIR Integration and the transformational JSF are fully implemented.

#### *KC-130J*

The KC-130J Hercules will provide the MAGTF and Joint Task Force Commander with a technologically advanced weapons platform featuring a state-of-the-art flight station. Enhancements in survivability and night vision capabilities will provide MAGTF Commanders with a superior force multiplier to project combat power. Operationally, the KC-130J will support an increase of 5,000 feet in refueling altitude while increasing fixed wing refueling speed by 30 knots. Rapid ground refueling enhancements include refueling pod improvements that enable a 300-gallon per minute off-load to air assets and tactical vehicles. Aircraft speed and range will increase 21 percent and 35 percent respectively, significantly extending the MAGTF Commander's capabilities. The KC-130J will replace all active duty KC-130F/Rs. The Marine Corps, along with the Air Force, has recently signed a MYP contract. The Marine Corps has taken delivery of nine KC-130Js and will have procured a total of 38 KC-130Js at the end of the FYDP.

#### *E-2C*

The fiscal year 2004 President's budget requests \$228.5 million to procure one E-2C and one TE-2C as the first year of a 4-year MYP. This effort will keep the production line viable while the E-2 Advanced Hawkeye (AHE), formerly known as the Radar Modernization Program, continues spiral development toward an Initial Operational Capability in fiscal year 2011. The Advanced Hawkeye program will modernize the E-2 weapons system by replacing the current radar and other system components to maintain open ocean capability while adding transformational surveillance and theater air and missile defense capabilities. The AHE program is scheduled to enter the SDD phase in fiscal year 2003. Further, CEC is being integrated into our E-2C aircraft and FOT&E of this added capability is ongoing.

#### *EA-18G*

The Navy is initiating AEA efforts on the F/A-18F air vehicle and has included initial funding in the fiscal year 2004 budget. The EA-18G will replace the aging EA-6B Prowler, and will be part of the F/A-18E/F MYP. As a result of congressional funding in fiscal year 2003, EA-6B follow-on activities have already commenced. Fiscal year 2004 efforts will focus on risk reduction and development activities concerning the integration of EA-6B Improved Capabilities (ICAP III) electronic attack technologies into a proven air vehicle. Initial Operational Capability is currently planned for fiscal year 2009. The Marine Corps expects to fly the EA-6B (ICAP III) until approximately 2014 to 2015 before transitioning to a new electronic attack aircraft yet to be determined.

#### *Multi-mission Maritime Aircraft (MMA)*

The fiscal year 2004 President's budget requests \$76 million to begin the SDD phase on the MMA. A down select to a final system integrator/provider is planned for the second quarter of fiscal year 2004. P-3 aircraft are flying in excess of 150 hours per month in support of Operation Enduring Freedom and the global war on terrorism. This flight regimen requires a special inspection program to allow continued operation to as much as 150 percent of fatigue life given the age of the aircraft. To address this critical warfighting capability the Navy is procuring a MMA with a planned IOC of 2012. The program is currently in the Component Advanced Development Phase with two competitors, Boeing with their 737 commercial-derivative aircraft and Lockheed-Martin with their modernized P-3C concept.

#### *Unmanned Aerial Vehicles*

The global war on terrorism has emphasized the importance of UAVs. The fiscal year 2004 budget reflects our increased commitment to a focused array of UAVs that will support and enhance both surveillance and strike missions with persistent,

distributed, netted sensors. The Navy's tactical UAV programs are focused on two areas.

*Unmanned Combat Aerial Vehicle—Navy*

The fiscal year 2004 President's budget requests \$116 million for UCAV S&T demonstration efforts, and \$5 million for establishment of the Joint UCAV Program Office. Leveraging our demonstration efforts, the Department will seek to improve the sensors and payloads to produce a penetrating surveillance UCAV-N with multi-mission capability as well as work towards a JSF-like joint acquisition strategy that results in the selection of a common platform capable of meeting service-unique mission requirements.

*Precision Munitions*

*Joint Standoff Weapon*

The development of the Joint Standoff Weapon "C" has been a success with the first test achieving accuracy objectives. The dispenser variant production has been accelerated and JSOW is being delivered to deployed combat units. The fiscal year 2004 budget request for JSOW is \$138.5 million for 429 weapons.

*Joint Direct Attack Munitions and Laser Guided Bombs*

The production capacity for manufacturing Joint Direct Attack Munitions and Laser Guided Bombs (LGBs) has been increased, largely through the expenditure of supplemental funds appropriated by Congress. The fiscal year 2004 request of \$277.3 million for JDAM and \$81.3 million for LGBs will purchase 12,326 JDAM and 5,288 LGB weapons respectively at rates that take advantage of the expanded capacity.

*Tactical Tomahawk*

The Tactical Tomahawk missile begins full rate production in fiscal year 2004. Tactical Tomahawk significantly improves performance through an improved warhead, fuzing, and navigation improvements. This is accomplished at almost half the cost by using innovative manufacturing and production techniques. The Tactical Tomahawk completed successful developmental test shots from a simulated ground launcher in August 2002 and an underwater launcher in December 2002. The program subsequently awarded a Low Rate Initial Production Contract in October 2002, and exercised an option for additional missiles in January 2003, for a total of 192 missiles. The fiscal year 2004 budget requests authority for a fiscal year 2004–fiscal year 2008 MYP.

*AIM-9X*

The AIM-9X Sidewinder, a fifth generation infrared, launch and leave, air-to-air missile capable of countering current and emerging countermeasures, is currently in OPEVAL. The fiscal year 2004 budget requests \$2.7 million RDT&E for continued testing and \$104.9 million WPN to purchase 531 AIM-9X missiles (167 for Navy and 364 Air Force). Low rate initial production missiles are currently being delivered to the field and fleet. The program is progressing toward a MS III 4th quarter fiscal year 2003.

AVIATION READINESS

Our proposed plan continues investment in key operational readiness accounts and reflects an increase in aviation depot maintenance funding and sustained funding for our flying hours accounts.

*Flying Hour Program*

The fiscal year 2004 budget request reflects an additional \$137 million this year to sustain the investment level we established in support of last year's budget. This level of flying hours will maintain the combat readiness of our Marine Air-Ground Task Forces, enable our airwings to achieve required readiness 6 months prior to deployment, sustain readiness during deployment and increase our ability to surge in crisis and mitigate the risk of a smaller strike fighter force.

*Aviation Maintenance*

Last year, we reduced our aircraft depot level repair back orders by 17 percent; maintained a steady "mission capable" rate in deployed aircraft; and fully funded aviation initial outfitting. The fiscal year 2004 budget request reflects an increase of over \$210 million to fiscal year 2003's investment, and will increase the number of engine spares, improve the availability of non-deployed aircraft, and meet our 100 percent deployed airframe goals.

## SUMMARY

The Navy acquisition team has taken many positive steps during the past year. From moving forward with deliveries of the F/A-18E/F to continued progress on the JSF and V-22 programs, the support and direction of Congress have been essential to our progress. Through the use of innovative acquisition initiatives, our Nation is maintaining a healthy naval aviation industrial base and an efficient and an appropriately sized infrastructure to support an optimal force structure. I am most grateful for the assistance of this subcommittee for the entire Department of the Navy's efforts.

In the end, our tactical aviation assets are a tool of our sailors and marines. Today, the Navy and Marine Corps have used all of the aircraft in that fleet to fullest degree possible, putting combat capability exactly where the Nation needs as part of the joint force. Naval forces are also forward deployed, providing clear presence and protecting the United States' strategic interests. We have the finest naval force in the world. With your assistance, we will continue to improve every aspect of our business to provide the maximum capability for our sailors and marines and the maximum security for America.

Senator SESSIONS. I would just repeat once again that I salute those who came before me. Many of you were involved in developing the systems and aircraft and platforms that we have today that are allowing us to dominate the battlefield in Iraq. We owe it to the next generation to make sure we do the same.

I yield my time to Senator McCain to start.

Senator MCCAIN. Thank you very much, Mr. Chairman.

I appreciate the opportunity to talk to the Air Force. I notice, Secretary Sambur, that there is no mention in your statement of your plans as far as tanker assets are concerned. Do you have any reason for that?

Dr. SAMBUR. Well, we are in the process of getting three approval cycles.

Senator MCCAIN. Getting what?

Dr. SAMBUR. Approval cycles. The Secretary of the Air Force promised this committee, the staff, that we would go through an exhaustive analysis first in front of the DOD, then the Office of Management Budget (OMB), and then bring it back for your approval. So before we got that approval, we did not think it was prudent to put that in our budgets.

Senator MCCAIN. By approval, do you mean authorization in the defense authorization bill?

Dr. SAMBUR. No. By approval, we will seek approval from all four defense committees.

Senator MCCAIN. You are familiar with the Institute for Defense Analysis (IDA) study that was recently completed.

Dr. SAMBUR. Yes, I am.

Senator MCCAIN. Would you care to tell us about that study?

Dr. SAMBUR. Yes. That was a study commissioned by OSD to determine how well we did in negotiating with Boeing. We made the point that there were three factors that were missing by IDA in that evaluation. For example, they did not consider the Federal Aviation Agency's (FAA) more stringent safety requirements that were apparent in many things. They did not understand the requirements.

For example, there is a refuelable requirement on the auxiliary tanks that was not considered in their estimate. There was a requirement for a combi space that was not considered. By combi, I mean that the space that was not being used for fuel could be used

either for passengers, cargo, or a combination of both passengers and cargo. That was not accurately reflected.

As a result of our concerns, we met with the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (AT&L). They have arranged for a series of meetings with IDA and Boeing, so that we can explain to IDA some of these factors that were missed in their analysis. As we speak right now, we are in the process of working with IDA to give them a better understanding of both the requirements from the Air Force and some of the requirements for safety that the FAA has imposed upon us that were not considered in their analysis.

Senator MCCAIN. Well, I am entertained to hear that the Institute for Defense Analysis did not understand the parameters of the study they were asked to conduct.

Dr. SAMBUR. Their study took approximately 2 weeks; whereas our examination with Boeing was over 7 months. So there is a reason that they might have not understood the full extent of the requirements, because of the short duration of their study.

Senator MCCAIN. I understand that Air Force Colonel Frantz DeWillis described in great detail to the press how the Boeing Company wants to sell bonds through a special purpose entity to finance construction of 100 Boeing 767 aircraft leased to the Air Force as refueling tankers. He said, "There will be a three-way contract that says Boeing will build the planes. It will be sold to a special purpose entity that leases them to us after it gets financing to pay Boeing for the airplanes."

Is that still the contemplated method of leasing these tankers?

Dr. SAMBUR. It is through the special purpose entity, yes.

Senator MCCAIN. Do you have anybody in the Air Force who has had any experience with dealing with special purpose entities?

Dr. SAMBUR. Well, we had certain consultants who have that experience.

Senator MCCAIN. Consultants from Boeing?

Dr. SAMBUR. No, consultants from the economic world. The standards that this special purpose entity is adhering to are the new financial standards that have been imposed post-Enron, so we know that the special purpose entity has the latest up-to-date standards that were issued in January.

Senator MCCAIN. So you would not use the same procedures that Enron did, is that—

Dr. SAMBUR. These are the latest financial standards that have been imposed for special purpose entities to avoid Enron's situations.

Senator MCCAIN. Well, how long has this process been going on now, Mr. Secretary?

Dr. SAMBUR. The process of developing a proposal for the lease?

Senator MCCAIN. Yes.

Dr. SAMBUR. Ever since Congress gave us the authorization to go look at the feasibility of a lease.

Senator MCCAIN. You mean ever since it was in an appropriations bill.

Dr. SAMBUR. Well, you know—

Senator MCCAIN. It was a line item in an appropriations bill. It was never authorized through the Senate Armed Services Commit-



tee, to my knowledge. Well, I hope that you will keep Congress, this committee, and the subcommittee in particular briefed on this issue.

Dr. SAMBUR. We committed to give you a good deal.

Senator MCCAIN. Pardon me?

Dr. SAMBUR. We committed that the Air Force would bring forward for the American public a good deal. That is our commitment and we intend to maintain that throughout. We will show you, as we go through the steps I mentioned before, through the DOD, through OMB, and back to the various committees, all of the data that supports the fact that we have a good deal.

Senator MCCAIN. Well, I hope so. Your initial proposals that were made were probably the best deal ever achieved in the history of the military industrial complex. I do not know why we cannot just purchase them as we do other assets in the military. So far, you have not made the case, as far as I am concerned. There has been obfuscation. There has been delay. There is withholding of information from me and this committee.

I want to assure you again: You have not made the case. You certainly have not been open in sharing with us information concerning this decisionmaking process. You may win. The military industrial complex has won before in my experience of many years on this committee. But I will tell you, the American people and the American taxpayers are going to know about it if you try to pull off this scam, which is exactly what it is.

I thank you, Mr. Chairman.

Senator SESSIONS. Thank you, Senator McCain.

Did I understand that you would be conducting an analysis of alternatives (AOA)? Is that the formal process?

Dr. SAMBUR. No, I did not say that. No.

Senator SESSIONS. Will you be doing that?

Dr. SAMBUR. No.

Senator SESSIONS. You will not.

Dr. SAMBUR. We will not.

Senator SESSIONS. Why not?

Dr. SAMBUR. Well, for a number of reasons. First of all, we have—you said we never made a compelling case as to “Why lease?” Earlier in your testimony, Mr. Chairman, you talked about the fact that we were retiring Es. One of the reasons that we are retiring those Es is because we are concerned about the safety, about the corrosion.

I know there was an Air Force report study a couple years ago that seems to indicate that there is a life expectancy of these Es that is far greater than we are now telling you. But what we are finding is that the corrosion of the Es is very serious. It is much more serious than the study ever anticipated. Air Force Materiel Command has determined that it would be unsafe to go forward unless we retired those Es.

So one of the reasons we are going forward with the lease is because it is the most affordable way of getting needed assets to our Air Force and Navy in the shortest possible time. It gives us a 5-year advantage over any other mechanism for doing that.

Senator MCCAIN. That is a very interesting statement. It has nothing to do with the question. Why do you not do an AOA, just as we do whenever we examine any new weapon system?

Dr. SAMBUR. Well, we did an analysis of alternatives in a shortened fashion. We determined, for example——

Senator MCCAIN. You did an AOA?

Dr. SAMBUR. We did not do a formal AOA, as you——

Senator MCCAIN. Oh, I see. You did not do a formal AOA.

Dr. SAMBUR. No. But we——

Senator MCCAIN. Please. Please, Mr. Secretary. You either did an AOA or you did not. There is no such thing as an informal AOA. Okay? I do not know how long you have been in your job, but I have been here a lot longer than you have been doing what you are doing. I can tell you an AOA is an AOA. You have not done one. It is disgraceful that you have not done one.

Dr. SAMBUR. Well, we presented our analysis of alternatives in an informal sense to the DOD. We looked at reengining. We looked at various other aircraft for refueling. We actually made, as a suggestion from your part, an effort to determine if we were getting the best possible price. We looked at the Airbus configuration. We looked at the buy-per-hour alternatives that a company in Ireland is offering.

We have looked at all of those issues. We have presented those facts to the OSD that is evaluating this.

Senator MCCAIN. You have not done an AOA.

I thank you, Mr. Chairman.

Senator SESSIONS. Senator Pryor.

Senator PRYOR. Thank you, Mr. Chairman.

If I may, Secretary Young, you indicated in your prepared testimony that you plan to replace the Navy's EA-6Bs, which are four-seat aircraft, with a variant, I guess, of the F/A-18E/F, or some I think call it the EA-18G, which is a two-seat aircraft. Even with all the advances in technology, do you feel comfortable, do you feel confident, that we can go from a four-seater to a two-seater and still accomplish what we need to do?

Mr. YOUNG. Well, I believe we are working those details. I visited Cherry Point recently and talked to the operators of EA-6Bs. We are adapting the existing ICAP-III systems from the EA-6B to the EA-18G. I do indeed believe we can, with appropriate crew training and systems automation put in these systems, have them perform the mission and do so successfully. As we look through the details of this, we are using the crews to help define the two-man cockpit. I feel that we can accomplish the mission.

Senator PRYOR. That is good to know. Because I know that, for example, in the C-130 with the new J, we are actually losing seats there, which again makes sense, given technology and everything.

Let me ask the Marine Corps about the EA-18G. Is that part of your plan, or do you have another proposal to replace the EA-6B?

General HOUGH. Sir, we currently have 20 EA-6Bs down at Cherry Point. They provide a great service. However, no matter if you are a Navy airplane or a Marine airplane, they are all getting old. We know that. We also know that the Growler is going to come in. They are going to replace the Navy airplanes first. They ought

to, because they have to go aboard the boats. They take the greatest pounding.

We are on the tail end. With DOD, with Mr. Aldridge, the Navy, Air Force, and Marine Corps, we got together and we said, "How are we going to solve this problem?" The way we came about it and we presented to Mr. Aldridge was to step back and say, "I will take the EA-6Bs, and we will figure out a way to be on the tail end of these and keep them longer than anybody else and let the Navy get their Growlers."

The Air Force is going for a system-of-systems approach, to fold together all of us and take a look at how we are going to do business in the future, say in the 2012 to 2015 time frame, not knowing exactly how long the EA-6Bs are going to last. There are two studies that we will fund this year to look at this problem.

One is: How long, how much, and what do you have to do to keep the EA-6B going? What is the bottom line? The second one is taking a look at the EF-35. It showed great promise in the demonstration phase, great promise in the avionics capability, what it can do, what it cannot do, with its stealth, its capabilities, interoperability and its avionics package. Take a look at that and, of course, depending on when it comes in, to take a look and see what the business case reads as to where it does come in and when you can put money against it and to see just where we stand.

Those two studies over the next 2 years, as Mr. Aldridge said, will take a look at that, and by 2005, 2006 we will have a plan. That is what we are doing, sir.

Senator PRYOR. Okay.

General Keys, what about the Air Force?

General KEYS. We believe that the system-of-systems is the right approach. It is much like we do today. We have the F-16CJs, the EA-6Bs. We have self-protection jamming and a blend of capabilities. Now as we see the time line move further out, now we have UAVs that can provide us some close-in jamming. We will have the Growlers out there providing that type of jamming.

We are looking at the B-52, for example, with a pod for standoff jamming, miniature air launch decoys. Then as you bring on the FA-22 and the F-35, you have the airborne electronic steerable array, which then allows you, actually within your fire control radar, to timeshare and do things to active radars. And we believe that is the best combination of systems to go against the array that we will face in the time line that we are talking about.

Senator PRYOR. Okay. Let me turn my attention, if I can, to the FA-22, which, as I understand it, is supposed to enter initial operational testing (IOT)—is it October of this year?

Dr. SAMBUR. Dedicated IOT will be in October of this year, correct.

Senator PRYOR. Okay. Do we feel confident we are going to make that time frame?

Dr. SAMBUR. Well, we feel there is an 80 percent probability that we will get there. Let me explain to you what I mean by 80 percent probability. Basically, 7 months ago, when we marched our way to dedicated initial operation test and evaluation (IOT&E), we have had several issues that were confronting us.

I am not sure if you are familiar with some of the data. We had an issue with the tailfin buffet. We had issues with canopy howling. We had issues with the brakes. Systematically, we have been facing those and solving those problems. We also had a problem in flight science testing. We have basically gotten our curve down.

The one remaining problem we have right now is avionics instability, which I am sure you are aware of. One of the things we were concerned about is whether or not we had an architecture that inherently we would never be able to get stability in. We have gotten some of the best minds in the world. We have gotten two blue ribbon panels to look at this. They have ascertained that the architecture is fundamentally sound and could be stabilized.

So now there is a question of software debugging because when you are in a situation in which you have an error every couple of hours, obviously that is a much more significant problem to figure out.

Again, what we have done there is to augment the quality of the staff. We have put in more test vehicles for doing this. We have put in not only the instruments for testing, but also the labs. We have focused attention on that with a systems engineering approach that we have also gotten outside committees to look at.

So they feel reasonably sure that we will get there. Whether we will get there at the end of October or not may not be the case. But I would like to tell you, when we made our budget estimates, we assumed that we would not finish in October. We actually gave ourselves several months of contingency. So there is time beyond October where we will not have any impact on both budget and initial operational capability date. So there is—

Senator PRYOR. That was my next question.

Dr. SAMBUR. That will not affect that. So I cannot give you absolute assurance that we will complete this in October, but I will give you absolute assurance that we put contingency in our budget so it will not affect that from a financial point of view, and we have scheduled a contingency to do this. We have the best team in place to solve the problem, and it is a solvable problem.

Senator PRYOR. Good.

Thank you, Mr. Chairman.

Senator SESSIONS. Thank you. I guess it is my time, unless Senator Chambliss has a time problem. You can go ahead of me.

Senator CHAMBLISS. No.

Senator SESSIONS. Following up on the FA-22, at this time last year, the FA-22 was scheduled to start initial operational test and evaluation this month, April 2003. That was later changed to start in August 2003 and now in your written testimony you state the testing will not start until October 2003.

It seems a major issue there is software stability. It has been reported that the latest software load to be delivered is not meeting its objectives of 10 hours run time. You mentioned that, I think. The software load required to commence operational testing has a stability objective that calls for 20 hours of run time.

In a briefing by a team established by the Director of Defense for Research and Engineering just this past December, it was stated, "Run time stability remains severely problematic. Time and effort

needed to resolve the issue is unknown. Effectiveness of the current strategy to resolve the issue is uncertain.”

How would you respond to those concerns, Mr. Secretary?

Dr. SAMBUR. Well, Mr. Chairman, I would like to go back to the answer that I gave to Senator Pryor. First of all, it is not an unsolvable problem. It is not mission impossible. We have had teams come back that have told us the architecture can fundamentally be stabilized. So it is not a question, again, of mission impossible.

As for your data points on April to now, you are absolutely correct. We have had schedule slips. But we have instituted new procedures into this program, more of a system-oriented nature so that we are solving these problems in a very structured manner. As I tried to indicate to Senator Pryor, we have solved many problems since April, many of those problems this committee or previous committees thought were unsolvable. I mentioned the fin buffet as being one of those. Just the other day we had a problem with the landing gear. I am happy to tell you we solved that in a very expedited manner. In a matter of 3 days, we found out what the problem was.

Senator SESSIONS. You are satisfied that the fin buffet is—you have actually worked that out?

Dr. SAMBUR. Yes. We have actually tested that on our flight science aircraft. We are solving a number of these problems because we now have the right approach, we have the right manpower, and we have the right attention from industry. They recognize how critical this program is, to get it solved.

So those three ingredients should bring a success, coupled with the fact, the overarching fact, that this is a solvable problem.

Senator SESSIONS. Well, production is a second concern to me. According to the contract schedule provided to the committee last year, it seemed we would have taken delivery of aircraft through tail number 4019. Yet I believe the latest aircraft delivery was tail number 4012 this past January. According to the latest production delivery schedule delivered by the Air Force just last month, tail number 4019 will not be delivered until the end of September.

The contract calls for aircraft through tail number 4025 through September. It appears even by the Air Force's plan that through the end of fiscal year 2003, production deliveries will be behind by 6 months and six aircraft.

So can you tell us what the reasons are for these production deliveries running so far behind?

Dr. SAMBUR. Well, you are right. There are problems with production. What we did is we attacked it the same way that we are attacking some of these issues with stability. We brought in a focus team. Basically, we had no metrics to view things on in terms of parts shortages, in terms of metrics for evaluating how long things took.

So we have a metric in process so we can evaluate ourselves. The management there has been elevated. We brought experts from some of the more successful programs that Lockheed Martin has run. They have even put one of their executive vice presidents in charge of the program, an individual who has a proven track

record. The result of this is that we are starting to see deliveries come out ahead of the projected schedule.

So I cannot tell you that we are going to catch up. All I can tell you is that I apologize for the delay. But I can tell you going forward we are starting to meet our commitment. As a matter of fact, the last jet was delivered almost a week ahead of schedule. We are starting to see the metrics improve substantially. So there is a change for the better here.

At the end of the program we will be delayed, as you correctly indicated. But there is movement in a positive sense.

Senator SESSIONS. Well, you gave us in your statement, I think, a real mouth-watering description of the value of this aircraft. I think it is truly a leap forward. It is a very important aircraft.

Dr. SAMBUR. Thank you.

Senator SESSIONS. I think we need to move it forward.

Dr. SAMBUR. We were privileged to give you a special session on Friday, where you got some inside information on the surface-to-air missiles that are proliferating throughout the world, to give you a better appreciation of what we need.

Senator SESSIONS. But with this software problem, you are not able to complete your operational test, as you would normally be doing with these initial production aircraft?

Dr. SAMBUR. Let me explain to you what the issue is. First of all, it has nothing to do with safety of flight. That is a different set of software. This is the actual sensors. When it goes down, you basically, as you do on your computer at home, you restart or control/alt/delete, and you get the things back in order.

So the impact is on how long it takes you to actually do the testing. It is very wasteful for every time you start to do a test, as soon as you go along, to do this control/alt/delete. So we obviously have to fix that to get through testing. Then there is a test that you need the stability for of 20 hours.

So it is not a case of any safety issues with the actual avionics, but it is an issue in getting through this test. It is certainly something we have to fix to get through this testing in an expedited fashion and to even prove the value of the jet.

Senator SESSIONS. Well, we are concerned about it. This aircraft has extraordinary capabilities. We need to ensure that we are first in the world in these kind of aircraft and this would take us there, I have no doubt.

Senator Chambliss.

Senator CHAMBLISS. Thank you, Mr. Chairman.

I will come back to the F-22 in a minute. I have a couple questions there.

But I want to start out with you, Admiral, with respect the F/A-18 and particularly the squadrons, the Carrier Air Reserve Wing 20, which is headquartered at NAS Atlanta. Only two of those squadrons are funded in the Navy's 2004 budget. I note that VFA 203 from Naval Air Station Atlanta has been deployed several times just in the last year alone in support of military operations around the globe. I have two questions relative to that.

First, can you talk about the Navy's tactical air integration effort and why the Navy and Marine Corps Reserve are paying the price

for efficiency and modernization, since it appears that it is the Reserve squadrons that are being targeted for closure?

Second, can you give me some feedback on the logic of closing a squadron that is constantly deployed or constantly preparing to be deployed in support of operations around the world?

Admiral NATHMAN. Yes, sir. Most of our Reserve strike fighter squadrons, the ones in Atlanta, have been providing training support primarily to Navy and Marine Corps tactical squadrons, operational squadrons, active duty squadrons that are deployed. So they have been deployed in terms of detachments to support training for those particular squadrons.

The war, particularly Operation Enduring Freedom, and then in preparation for the amount of carriers that we needed to have forward for Operation Iraqi Freedom, resulted in a—we matched the air wing to the carrier. We try and do that about 18 to 24 months before the next deployment, to make sure that things like the maintenance support are stabilized.

The war basically caught us in a transitioning period with the accelerated decommissioning of F-14s. So this is a little bit of a longer answer, but we tried to rush in the EF. But we can only buy the Super Hornets so fast to replace those squadrons. Because we could not do it rapidly enough and meet the support requirements for those aircraft, we had to basically bring a Reserve squadron into an active duty air wing to provide the full warfighting capability of that air wing.

So we stood up, as it were, and activated that Reserve squadron to flesh out that air wing for deployment. That typically is not part of our plan. What we are doing right now is studying a total force requirement with the Reserves to find out what is the best way to do several things. What is the best way to make the people in those Reserve squadrons part of the warfighting wholeness answer that we need? Right now you are seeing an example of that, where that squadron is activated in an air wing to go to war.

But there are other ways of doing that. There is a tremendous amount of contingency support that we need in terms of additional pilots, maintenance, and crews. So we are studying those efforts right now to find out: What is the best way to integrate the total force of those people in the squadron?

We need to look at the recapitalization of our Reserve squadrons as a tremendous challenge to the Navy in terms of affordability. One of the reasons why we made the decision in the integration efforts was we believe that we are bringing a much more capable force with the aircraft that we are purchasing, the Super Hornet and joint strike fighter and F-18G. With that improved capability, we can take the risk in coming down on the total numbers of fighters.

So it makes sense to us, in terms of understanding where we are going to go with the Reserve force structure, that we look at—because the study will come out before the decision is made to actually decommission those particular squadrons. We will have the study completed. We will know the best way to integrate our people and to look at the total recapitalization challenge.

So that is where we are headed right now, sir, to figure out and make sure we are making the right decisions about those Reserve strike fighter squadrons.

Senator CHAMBLISS. Now when is that study going to be coming out?

Admiral NATHMAN. We are in the middle of it right now. I expect the study will be completed in less than a year. The Navy will have a position on its total force, and particularly those squadrons. That will lead the decision before we make the decommissioning decision or the disestablishment decision for those Reserve strike fighter squadrons.

Senator CHAMBLISS. What about when you start bringing assets back from the Middle East, assuming this conflict is over within the next several weeks, months, whatever? What effect is that going to have on these Reserve squadrons?

Admiral NATHMAN. We are trying to understand that right now. One of the challenges of the current war is we have a certain amount of force structure, obviously. We have five carriers, with a sixth that just entered the AOR, the U.S.S. *Nimitz*. So we have six carrier flight decks, basically, in this war. We also deployed *Carl Vinson* to backfill *Kitty Hawk* in the Pacific Theater.

So one of the things we do not know yet is in the reconstitution of our force, what is the force structure we have to leave behind? In other words, what will CENTCOM want? When the war ends, what will they want in terms of presence? The United States Navy has provided anywhere from one to two aircraft carriers full time since 1990 in the Persian Gulf. We do not know what the reconstituted force structure is going to be, what the requirement will be. When we understand that, we will understand our reconstitution challenges.

So I do not have a complete answer for you, because we do not know what force structure we will have to leave in the area to reconstitute the force when it comes back. That will give us a real good answer of what our trades are. I can assure you the Reserve force structure will be part of that equation, to understand how to reconstitute our active force, sir.

Senator CHAMBLISS. Rather than me bugging you and Admiral Clark down the road, if you all will stay in touch with us and keep us posted on that, I would appreciate it.

Admiral NATHMAN. Yes, sir.

Senator SESSIONS. All right. Thank you, Senator Chambliss.

We will do another round.

Precision weapons are a critical component of what we are doing in Iraq today and what we utilized in Afghanistan. The ratio of guided to unguided munitions has continued to increase in each conflict. Production rates of laser-guided bombs and JDAMs are either at maximum production rates or on a ramp to reach maximum production rates.

Admiral Nathman, General Hough, and General Keys, I will ask you this: Are all of our strike aircraft modified to employ these precision munitions? Are there any modifications needed by the aircraft in your service to achieve employment capability?

Admiral NATHMAN. I will start. I will tell you that our aircraft are modified to carry all precision weapons that we feel like they



need to carry right now. As an example, we just finished the integration test and the approval of the F-14 to carry JDAM, which is an important piece for us, because the airplane is carrying it right now, I believe. The Navy, to my knowledge, is not—

Senator SESSIONS. It is carrying it now, but you need to do further modification?

Admiral NATHMAN. No, sir. We have completed the test and the modification on the F-14 to drop JDAM. We did that the last couple of years. We were going through a process of making sure that all the integration tests were appropriate, and the approval process, we accelerated that for the war. So we have approved the dropping and the carriage of JDAM onto F-14s for the war. It was an acceleration of a decision we made, I believe, back in 1998 to integrate JDAM onto the F-14.

Senator SESSIONS. Are all those so configured today?

Admiral NATHMAN. I will have to get back to you with the total numbers of airplanes that are. But to my knowledge, all the current operational F-14s will have that capability.

[The information referred to follows:]

All 64 F-14B and all 47 F-14D aircraft are JDAM-capable. None of the 37 F-14A aircraft are JDAM-capable. (See table below.)

Platform	# of aircraft	JDAM Variant		
		GBU-31(v)2/B Mk84 (2000 lb)	GBU-31(v)4/B BLU-109 (2000 lb penetrating)	GBU-32(v)2/B Mk83 (1000 lb)
F-14A	37			
F-14B	64	X		
F-14D	47	X		

X = JDAM Capable

Senator SESSIONS. General Hough.

General HOUGH. Yes, sir. Thank you. Our F-18s can drop them, but our AV-8s cannot. They are undergoing, and have been for the last few years, an open architecture software infusion, if you will, to be modern with 21st century airplanes, to do anything anybody else does.

Right now we are testing JDAM at China Lake. With the completion of those tests and the funding and completion of the OSCAR program, which is the Open Architecture Program, we will be able to drop everything we have in the inventory. That will be by 2005.

Senator SESSIONS. General Keys?

General KEYS. Ours can all drop either laser or JDAM, including the bombers.

Senator SESSIONS. I would just say to Admiral Nathman and General Hough: This is a big deal. To me it is so plainly obvious that the JDAM is just a magnificent weapon of choice in so many circumstances that we need plenty of them. We do not need to run out of them. If we have to start a new assembly line to have them—and everybody said we are going to have plenty, and I hope we have plenty—we need to make sure our aircraft, whatever it costs in terms of the overall budget—we buy ships, we buy air-

planes—it seems to me, we need to be sure that we are configuring our aircraft to carry them.

General Hough, is it a question of just money that you all have made that decision to go until 2005? Why would it take that long?

General HOUGH. No, sir. It is undergoing testing. And it has to be able to drop the works. In fact, within about 3 to 6 months, the ability to be able to drop the 500 pound JDAM may be over. To drop each one of these 500, 1,000, or 2,000-pound bombs, it does take a little while. There were a couple hundred sorties that were put against this.

It was not a matter of the money. We fund this every year. It is just a matter of funding OSCAR. I have been assured, and the testing is going fine, that when I say 2005, in about a year to maybe a little bit more than a year, these tests ought to be complete.

Admiral NATHMAN. Mr. Chairman, could I do a follow-up?

Senator SESSIONS. Yes.

Admiral NATHMAN. One area we need help—and this is just a case of timing; this is not because we were overtly bad about things. We had a plan to decommission or disestablish the F-14 and transition to Super Hornet. We accelerated that plan 2 years ago to make sure that we could get out of the very high operations and support costs of the F-14.

Now on top of that we had an acceleration of that particular plan. The F-18 multiyear supported that transition. But the war accelerated the deployment of our force. We have surged a significant amount of carriers and air wings above what we normally do, when we did the President's requirement for the Global Naval Presence Plan. So that acceleration has led to a very practical problem for us.

We purposely scaled the amount of ancillary equipment that we bought for Super Hornet and weapons integration to meet this kind of paced disestablishment of the F-14 and transition to the F-18 Super Hornet. So one area we dearly need your help on is additional funds for ancillary equipment for the Super Hornet, additional weapons, and accelerated weapons integration, which we did not originally program for because of the pace of the war.

So that is a very practical area that you could help us on. I believe that if we have a significant reconstitution effort where the war is going to go, those are the type of investments we should accelerate, because we have the opportunity to accelerate those investments. We would appreciate your help on that, sir.

Senator SESSIONS. Well, I certainly will. You can count on that. The authorization bill will be coming forward, and we will be looking at that.

Just briefly, Secretaries Young and Sambur, are we doing all we can do to maximize production of precision-guided munitions at this time, to your knowledge?

Dr. SAMBUR. Well, as you said at the beginning, we have given additional money for facilitation of the JDAMs to 3,000 a month, which we will hit in July. We are presently at, I think, 2,400 a month. We are looking at all sources to make sure that there are no sole source issues that could cause us issues. We are actively

seeking to look if there are any other alternatives. But right now we are meeting all of the requirements for JDAMs.

Mr. YOUNG. Mr. Chairman, I think the Navy has looked for some resources and worked with the Air Force on JDAM to pull back that 3,000 a month a little earlier. So we are doing exactly, as the Secretary said, everything that can be done. Laser-guided bombs are at 1,500 a month with 2 providers. That is the maximum rate there. So we, in both of those areas, are doing the best we can. Then in the supplemental, there is serious consideration of facilities monies for Tactical Tomahawk, so we can raise the anticipated production rate of that missile to a higher level and do so sooner and within that created space. Clearly we would like to use some supplemental funds to buy Tactical Tomahawks sooner. That is an urgent need that is coming before us.

Senator SESSIONS. Well, we will maybe talk about it later. The Tomahawks are so much more expensive, and I am sure there are reasons. We have used an awful lot of them, it seems. The JDAMs have tremendous capability for reasonable cost.

Senator Pryor.

Senator PRYOR. Thank you, Mr. Chairman.

I think I agree with you. The JDAM is a very interesting and positive development for our military. I think it is a very common-sense approach to a challenge that we have. I am glad that you all had the foresight to develop that. I may not understand anything about the technology involved in JDAM, but there is something I do understand and that is being overweight. So I want to ask about an airplane that is overweight here and I want to find out how serious this problem is.

Secretary Young, if I can ask you: As I understand it, the JSF, at least one version of it or maybe all, I am not sure, is overweight. Six thousand pounds overweight is what I have in my notes here. Could you talk about that and tell me how that is going? Also, why is it overweight? What makes it overweight?

Mr. YOUNG. I will take two approaches to answering the question, if I could. One is, we are still in the early design stage of the program. We are 16 months into the new System Development and Demonstration. So at this point, some weights are still being estimated, as we design the airplane based on historical information and experience, parametric data, if you will. That analysis says that the plane is something on the order of about 1,000-plus pounds overweight, the engine and the airplane together. Then they took another view of this, which is a bottom-up estimate of the weight with different tools that produced a number like you quoted, sir, about 5,000 pounds.

What I would say to you is: In both those cases, the JSF program is one of the best planned programs in the Department of Defense. It has a weight curve leading all the way out to what they want the plane to weigh at IOC. So what we are talking about is what the plane weighs here at the preliminary design review stage. We are above the target that was set.

Even at those weights, we are still not, I think, above the IOC weight of the airplane. But we are clearly above where we should be at this early stage of the program. Through the application of management tools, the number one focus of the program is to bring

the aircraft weight back down to the preliminary design review target. This will give us a more than adequate margin to develop the plane and meet the IOC weight.

There is a risk. I would tell you it is probably the preeminent management concern before the program right now, particularly on the STOVL version. But, the program has the tools and has identified the issue and is working it aggressively.

Relative to the bottom-up review, it was done to allocate areas where people need to go in and attack the weight and bring it down. Those allocations have been made and the team is working in each area to bring those weights back down.

Senator PRYOR. What is causing it to be overweight? What is it?

Mr. YOUNG. The engine is a factor. It is one of the more mature components. It is an engine derived from the F-22. It is a sophisticated engine. There is about 172 pounds of weight challenge, I believe, on the engine.

The airplane, likewise, particularly the STOVL configuration with its ability to lift vertically, has a lift fan and a complicated propulsion system that has a substantial weight contribution.

So I would not single out any factor now as a real long pole in the tent. It is just that overall the estimates are getting refined and will be further refined as the program progresses. We anticipated the plane would grow along the way to the IOC weight. It has grown faster than necessary and we have to implement a weight reduction program.

The other places that they are looking at is the empennage area where the wings join the body. We may have allocated more margin than necessary for the structural joints and other areas, because we wanted to be prudent in avoiding cracking and fatigue, early fatigue, problems in the plane. So we are going in and refining whether we can lighten up those structures and still have adequate structural life.

Senator PRYOR. The STOVL aircraft, is it heavier than the others by necessity, given the variation on it?

Mr. YOUNG. I would like to give you the weights for the record. My memory is that it is slightly heavier at this point than the carrier variant, and both of which are, I believe, a little heavier than the conventional takeoff and landing variant for the Air Force.

[The information referred to follows:]

	CTOL	STOVL	CV
Mar 2003 Wt est	26,582	30,401	29,935
PDR Wt est	26,286	29,726	29,747
IOC Wt	27,100	30,500	30,700
NTE wt	27,728	30,958	31,324

STOVL = Short Takeoff, Vertical Land  
 CTOL = Conventional Takeoff and Land  
 CV = Carrier-based Platform  
 PDR = Preliminary Design Review  
 IOC = Initial Operational Capability  
 NTE = Not To Exceed

Senator PRYOR. I think that is right, too.

With regard to the—and I am changing gears here—C-130 program, Secretary Sambur, what is the current status of that? I believe you mentioned in your testimony a few moments ago that it is the C-130Es that have the corrosion problem. Is that right?

Dr. SAMBUR. You mean the KC-135s?

Senator PRYOR. Yes—I am sorry. I was talking about the C-130s.

Dr. SAMBUR. The C-130Js.

Senator PRYOR. Yes, C-130Js.

Dr. SAMBUR. Right.

Senator PRYOR. Is it not the C-130E that has the corrosion problem? Do you know?

Dr. SAMBUR. I am not sure. I do not know. I will take that for the record.

[The information referred to follows:]

Yes. Fifty-seven C-130Es were affected by corrosion. To date, 10 have been cleared through inspection, 32 aircraft have been identified for early retirement and the status of the final 13 will be determined pending further inspections. While some of the aircraft are being retired earlier than originally scheduled, the long-term impact to C-130 force structure is minimal.

Senator PRYOR. All right. I think that is right. I notice that the Air Force has slightly increased its procurement goals for that. I believe it went from maybe 40 to 42 planes or something like that. I did not know if that was in response to the C-130E problem or if that is just part of the general plan and the general needs of the Air Force.

Dr. SAMBUR. It is my understanding that it is part of the requirements that we are satisfying.

Senator PRYOR. That is all I have. Thank you, Mr. Chairman.

Senator SESSIONS. Senator Chambliss.

Senator CHAMBLISS. Thank you, Mr. Chairman.

We are in a multiyear procurement program for the C-130J for the Air Force, based on our C-17 model. I think you all will agree, it is one of the best decisions the Air Force has made.

I do have a question about the C-130 multiyear procurement for the Navy and Marine Corps. I think we finally have jumped through the last hoop in the last couple of weeks. That is now signed, sealed, and on track. I want to just make sure I confirm that. Gentlemen, is that right?

Dr. SAMBUR. My understanding is the contract is signed. It was signed a couple weeks ago. The planes are on contract, Air Force and Marine Corps.

Senator CHAMBLISS. Okay. General Hough, my Marine Corps installation is a logistics base. It is not a parochial issue when I say to you that I think the Marine Corps has been shortchanged from a TACAIR standpoint. I know you all made some sacrifices early on. When the Joint Strike Fighter comes on—this committee needs to look after the Marine Corps, make sure that your guys get the equipment they need to do their job. I think you did make a sacrifice. We all need to remember that when we start procuring the JSF for you.

Mr. Secretary and General, I want to ask you all again about the F-22. This avionics software has been a problem time and time again. Are we getting to the end of the road on this now with respect to the F-22?

Dr. SAMBUR. Well, we hope. We have a plan in place, as I mentioned before. Two blue-ribbon panels have determined that this is not mission impossible, that we can solve the problem. Software debugging, when there are problems of this nature, take some time. But we are systematically going through that.

Chairman Sessions mentioned the last software load. It is not really a load in the sense that this is a complete package. These are basically issues in which we have put fixes into the existing software package and tested it. The good news is that the start-up performance is now 100 percent. When we first started a couple of weeks ago, it was in the 60 percent range. So we have made a significant improvement on this.

It is not just a software problem. It is a combination of software and hardware issues. For example, there is an application specific integrated circuit (ASIC) that was faulty that we have corrected. It is not an architecture issue. It is a component within that architecture.

There is an ultrahigh-frequency tactical air navigation (TACAN) system that is giving us some problems that we are in the process of fixing. So we share your concern. But we think we will have it fixed. We cannot tell you the exact date, but it is not a lot after October 31.

Senator CHAMBLISS. We have a \$43 billion cap on this program. We keep coming down and down. Currently, we are still looking at 339 airplanes technically. But obviously, we cannot buy that many with \$43 billion.

Dr. SAMBUR. Yes, that is right.

Senator CHAMBLISS. Now how are we going to approach the long-term expeditionary force issue with respect to the actual number

of F-22s that we are going to be able to buy? What is that going to do to us?

Dr. SAMBUR. Well, we are at, as you probably know, a buy-to-budget. Right now with the existing numbers we think it is about 276, as opposed to the 339. But one of the issues that we have been talking about for a long time is stability in the program. We also mentioned the C-17, which is a program, I think, you are very much aware of. Once that program had stability, that the problems were behind it, the cost curve, the learning curve associated with production went down dramatically and the costs improved.

We are hoping that once we get this stability in the program, we will be beyond some of these problems, and we can focus on the production costs and use some of the improvements that we are seeing from the program we have in place to get cost improvements. We will get that number up beyond the 275.

Senator CHAMBLISS. All right. The testing we are doing now at Edwards, is everything going well? Have we had any recent problems? I have not read about any. I have been scared to get a phone call from Lockheed. But is everything going well?

Dr. SAMBUR. Everything has been amazingly successful outside of the software issues. We have had missile tests that have worked very well. The flight science tests are going along, according to the revised plan, which was a very steep slope in terms of getting those resolved. I talked about some of the issues with the fin buffet. We have proven that those things have been fixed. So the flight science is doing very well.

The logistics issues are going in place. The only mountain that we have is now this avionics software. We had actually five mountains, if you looked at it 7 or 8 months ago. We have been able to climb four of the five.

Senator CHAMBLISS. I go back to the fact that on every new weapon system we have had as many problems as we have had with the F-22. It still is comparable from a problem standpoint with every single other weapon system that we have procured.

Thank you, Mr. Chairman.

Senator SESSIONS. On the precision munitions, the JASSM sounds to me to have great potential. It would be an alternative to a Tomahawk in that it would likewise avoid flying over heavily defended areas. You have a 220-mile, 200-nautical-mile standoff. How is that doing? I think at the beginning of April we are supposed to have some deliveries. Do you expect to use anything in Iraq?

Dr. SAMBUR. A few months ago we had some issues with testing, and we corrected those problems. On March 26 we actually had a successful developmental test. We are back—beginning in April we have started the operational testing. So we are very encouraged about that plan for JASSM. Things seem to have turned the corner and we are doing much better. We are on track.

Senator SESSIONS. The Joint Standoff Weapon, JSOW, I guess you would call it—

Dr. SAMBUR. JSOW.

Senator SESSIONS.—appears to be considerably more expensive. Is that correct? Did I read that in one of your reports?

Dr. SAMBUR. I believe it is.

Senator SESSIONS. What advantage does it have over the JASSM?

Dr. SAMBUR. I will let my expert, General Keys answer that.

General KEYS. Basically, on the type of weapon that it carries, the sub-munitions is what tends to make the JSOW much more expensive than the JASSM, which is a unitary or a blast frag warhead that is selectable. So as you get to more sophisticated filling, if you will, for it, it starts to drive some of the costs up.

Senator SESSIONS. Back on the KC-135, I notice you are awfully adamant about the KC-135E not being able to be refurbished. Right?

Dr. SAMBUR. Right.

Senator SESSIONS. But we are doing it now. We have been doing it. How come today all of a sudden none of them are capable of being refurbished? Do you know the cost of bringing one of those up to current standards?

Dr. SAMBUR. Well, the question is not whether or not it is capable of being fixed. The problem is that we are finding areas of corrosion that are in areas that we had never seen before. There is a question, because of the design of the plane—the wings go up and water accumulates. It was a design that was not really well-suited for protection against the aging effects. It has dissimilar metals and all sorts of very poorly designed things for protection against corrosion. What is happening is, when the maintainers get in there and start looking at it, they are seeing areas of corrosion that are causing alarm to them, areas that they had not seen before. They are concerned about the wide-spreading nature of this.

So what they would rather do is to basically start retiring these things before catastrophic things occur.

Senator SESSIONS. We certainly do not need to take risk. But do you know whether in examining a KC-135E, taking it through for rehab, you can identify those that do have serious corrosion problems that may be unfixable? Can you identify those that do not and could be reused?

Dr. SAMBUR. Well, the first 68 that Air Mobility Command (AMC) has pointed out for retirement are those that they feel have significant issues, and that is the reason why they chose those to retire. They are looking at the potential of retiring even more Es in the future.

Senator SESSIONS. Well, that puts you in a fix, when you retire them. You have to have something for replacement, because we pretty much—that is a high-demand aircraft, I know.

Dr. SAMBUR. What AMC has done is that they have used the crews for the Es and started to put them on the Rs. Rs are now flying more with the additional crews. AMC has decided that that is worth doing, to use the Rs more than to use the Es, because they assume that the risks associated with using the Es is far greater than using the Rs more than they anticipated.

So the actual tanker utilization has only gone down a small degree, because they are able to use the extra crews from the Es, what is taken from the Es, and they are actually flying the Rs more, because they have more confidence in the Rs.



Senator SESSIONS. Does it appear that in the upgraded Rs you are not—is it not true that you are not having these problems with corrosion? Does that indicate that we can fix it by upgrading them?

Dr. SAMBUR. I think the issue is that the Rs are younger than the Es. We are not seeing those problems.

Senator SESSIONS. The aircraft itself is a new aircraft.

Dr. SAMBUR. The aircraft itself is younger. The Es are the oldest version of the tankers. The Rs are younger. We have not seen those problems. But I would assume that in the near future we will start to see those problems. That is why we are so anxious to have this recapitalization with leasing, because we think that the 5 years that you gain from leasing because of the affordability is something that we need to do now. We need to start this recapitalization now, because we are concerned of the unknowns, that these Rs may start to show problems that the Es are now experiencing.

Senator SESSIONS. Well, it is something I think I will be examining or asking questions about, because it is a lot of money. It is \$17 billion to recapitalize or add 100 KC-767s. It is a big pile of money. For a fraction of that, if you could continue to use existing aircraft, that would be a huge savings, particularly when you have spent all the things necessary to keep the Air Force going, and then you come in with \$17 billion for a program. If you could avoid it, that would be a lot of money that could be used for other things.

Dr. SAMBUR. Well, you recognize, of course, that this amount of money is over a long period of time. One of the issues that we did in terms of evaluating this lease is, first of all, we wanted to make sure that we really needed it, that time was critical to have it done. Second, we wanted to make sure it was affordable.

So one of the questions that OSD asked us in the lease was to say: Could you afford to do this? We made some very tough decisions to show them that this was affordable in our plan, because this is becoming a very important and critical issue for us.

Senator SESSIONS. Well, I thank you, all of you.

Secretary Young?

Mr. YOUNG. Could I revisit precision munitions for just one second?

Senator SESSIONS. Yes.

Mr. YOUNG. With the benefit of some time, I was able to pull some information. The JSOW has an average procurement unit cost of about \$200,000 per weapon. We worked with the Air Force on this, because the Navy has an interest here. JASSM has the benefit, like Tactical Tomahawk, of a good proposal from the companies. It is a \$400,000 class weapon. Lastly Tactical Tomahawk, where we likewise have a fixed price proposal from the companies, is about a \$600,000 class weapon.

Each weapon steps up in terms of range and capability. I think to one of the points you made, there have been some situations in Operation Iraqi Freedom where the TACAIR could not get to certain locations. We have shot Tomahawks that we might not have expected to shoot, because that weapon can go in, even in the sandstorms and other adverse conditions.

The whole toolkit of weapons provides a lot of flexibility. But, there is a gradual step-up in the cost of each one, somewhat commensurate with the capability.

Senator SESSIONS. So the JSOW is more expensive than the JASSM?

Mr. YOUNG. No, sir. It is less expensive. The procurement, the acquisition procurement unit cost, the current estimate is——

Senator SESSIONS. JSOW is \$200,000 and the JASSM is \$400,000.

Mr. YOUNG. Yes, sir.

Senator SESSIONS. Okay. I had it backwards. Thank you for correcting me there. The Tomahawk is not \$1 million; it is \$600,000.

Mr. YOUNG. Well, the original Tomahawks were. But the new Tactical Tomahawk, we have a priced agreement with Raytheon to get those weapons for about \$600,000. That is part of why we went to Tactical Tomahawk, to reengineer it and bring the cost down.

Senator SESSIONS. Very good. That is good progress.

Anything else?

General KEYS. I apologize for that. I thought when we were discussing that, it was a comparison between JDAM and JSOW. So I misheard your question.

Senator SESSIONS. All right. Thank you very much. We appreciate that. That is very helpful. You are laying the foundation for the future of our defense. We appreciate you very much.

We are adjourned.

[Questions for the record with answers supplied follow:]

#### QUESTIONS SUBMITTED BY SENATOR JAMES M. INHOFE

##### JOINT DIRECT ATTACK MUNITION CRITICAL COMPONENTS PRODUCTION

1. Senator INHOFE. Secretary Young and Secretary Sambur, I recently read a magazine article that stated a Chinese company had acquired significant control over the production of critical components for the JDAM. Specifically, rare earth magnets that are essential to the servos in the JDAM kit. According to the article, a Chinese consortium purchased the Indiana factory where the critical parts are produced. Is the United States allowing China to produce critical components for our JDAM kits? Are there other U.S. suppliers of these rare earth magnets?

Secretary YOUNG. Yes, rare earth magnets that are used in our JDAM servomotors are being procured from Magnequench, Incorporated, of Indianapolis, Indiana. In 1995, Magnequench, Incorporated was purchased by a consortium of Chinese companies.

Eighty percent of the servomotors used in JDAM are produced by SL-Montevideo Technology, Incorporated (SL-MTI) of Montevideo, Minnesota. SL-MTI obtains rare earth magnets for its servomotors from Magnequench, Incorporated.

The remaining 20 percent of servomotors for the JDAM program are produced by Kollmorgen Corporation of Radford, Virginia, which obtains its rare earth magnets from Magnetic Corporation of Torrance, California.

Numerous manufacturers exist in the United States that can produce rare earth magnets suitable for JDAM production. However, 75 percent of the raw materials used to make rare earth magnets are supplied by China. Although other sources and mines exist around the world, including the United States, China remains the most cost-effective source at this time.

Secretary SAMBUR. Yes, a consortium of Chinese companies purchased Magnequench, Inc., the company that owns the Indiana factory in question. Magnequench is a fourth tier supplier providing rare earth magnets to SL-Montevideo Technology, Inc. (SL-MTI), one of two servomotor manufacturers supporting the JDAM program. SL-MTI produces 80 percent of the servomotors used on the JDAM program. Kollmorgen (Radford, VA) produces the remaining 20 percent of the servomotors on the JDAM program. Kollmorgen's rare earth magnet supplier is Magnetic Corp (Torrance, CA).

Rare earth magnets are widely used by the automotive and computer industry. Numerous manufacturers exist in the U.S. that can produce rare earth magnets suitable for JDAM production. However, 75 percent of the raw material used to make rare earth magnets is supplied by China. Although other sources and mines exist

around the world (including the U.S.), China remains the most cost-effective source at this time.

#### TANKER LEASE/KC-135 CORROSION

2. Senator INHOFE. Secretary Sambur, during the hearing you stated the reason the Air Force was pursuing the 767 lease was the corrosion in the KC-135 E-models, and a safety report issued by the Air Force Materiel Command. Don't the KC-135 E-models and R-models have the same corrosion problem?

Secretary SAMBUR. The corrosion problems found on the majority of the aircraft structure (wings, body, tail structure) are basically the same on both the KC-135E and KC-135R models. All 540+ remaining KC-135 tankers were built and delivered to the U.S. Air Force within a 10-year span. Although the KC-135Es are slightly older, on average, than the KC-135Rs, the minor difference in age is insignificant relative to aircraft corrosion. The KC-135E tankers do have one corrosion problem not found on the KC-135Rs. The engine struts are suffering from widespread moderate to severe corrosion damage that had degraded the strength to the point where the struts may not be able to carry worst case design loads.

3. Senator INHOFE. Secretary Sambur, you stated the Air Force Materiel Command report indicated the KC-135 E-models were "unsafe" due to the corrosion. Can you elaborate on that comment and provide a copy of that report?

Secretary SAMBUR. The word "unsafe" might have been too strong. Our concern stems from the need to stay ahead of the growing corrosion issue. Aside from the increasing effects this has had on the Air Force budget, the corrosion problems impact operational capability.

The KC-135 engine struts are suffering from widespread moderate to severe corrosion damage that has degraded the strength to the point where the struts may not be able to carry worst-case design loads. Operational restrictions have been placed on KC-135Es with unrepaired struts to ensure safety of flight. Additionally, the C/KC-135 SPO and Boeing identified an interim repair that should maintain the structural integrity of the struts for up to 3 to 5 years. KC-135E aircraft have been receiving the interim repair during periodic depot maintenance since May 2001, with the remainder expected to be repaired by September 2004. Within 3 to 5 years after the interim repair, a much more expensive strut replacement/overhaul will be required.

Because of these corrosion issues and the associated costs, the Air Force intends to begin retiring those aircraft that pose the greatest concerns.

[The Air Force Materiel Command report follows:]

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## **KC-135 TANKER AGING AIRCRAFT STORY**



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## *Introduction*

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This brochure describes the factors...usage,  
aging, utility... influencing the longevity of  
the KC-135 tanker fleet

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# Fleet Demographics

## U.S. AIR FORCE

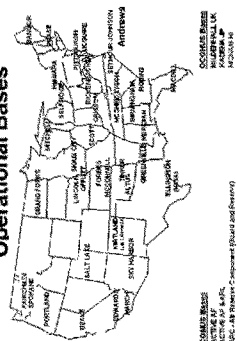
### Fleet Inventory by Using Command

AMC	AFRC	ANG
KC-R	KC-R	KC-R
SP	KC-E	KC-E
192	52	115
1	16	115
193	68	230
USAFE	PACAF	AETC
KC-R	KC-R	KC-R
15	15	24
1	1	1
1	16	NASA
AFMC	SP	SP
29	8	1

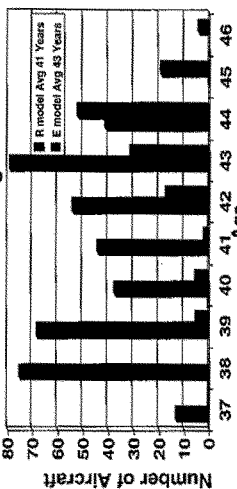
EBOL-564	544
Trainers	544
E model	131
E model	131
Special Purpose	40

- The KC-135 is the USAF's core tanker
- Primary mission - aerial refueling
- Secondary mission - cargo/passenger airlift
- New missions are emerging
- Communication relay platform
- Aeromedical evacuation

### Operational Bases



### Aircraft Age



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## Aircraft Life

### Aircraft life is measured three ways

#### Usage

Measured in flight hours

Structure flexes during operation and eventually begins to crack - referred to as fatigue

#### Utility

Assessed in usefulness

Capabilities and availability become insufficient as operational environment changes - requires modifications

#### Age

Measured in years

Exposure to environment over time induces corrosion and material degradation - requires repair

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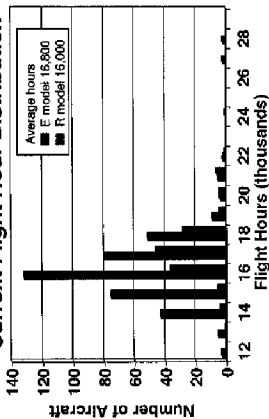
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### Current Flight Hour Distribution

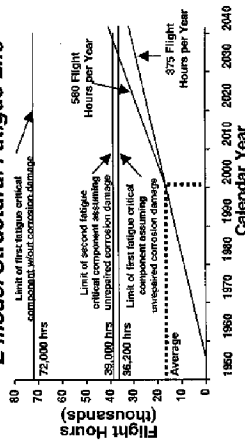


### Usage Aircraft

- Tanker ops tempo increased during DS/DS, ONW, OSW, Bosnia, Kosovo, Afghanistan - OEF, USA - ONE

- Average usage since Sep 11<sup>th</sup> 2001
  - Active duty AF: 480 hours per year
  - Guard/Reserve: 343 hours per year

### E model Structural Fatigue Life



- If looking only at usage, estimate 36,000 flight hours before reaching limit of first fatigue critical component on E model (refer to chart on left)

- Fatigue cracking now occurring in E-model engine struts; fatigue life does not consider current strut corrosion damage

- Unlike the C-141, which was limited by high flying hours (40-45,000) and fatigue cracking (usage), the KC-135 is limited by corrosion/cracking (age)

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## Aircraft

### Assembly Techniques and Material

#### Material Technology Evolution

1950's	1960's	1970's	1980's	1990's
KC-135	C-141	C-5A	C-5B	C-17
707-100	707-300	737/747	757/767	777
"Hand Made" Aircraft		Precise Tooling	Laser Precision Tools	
Minimal Corrosion Protection		Detailed Corrosion Protection		
Low Durability		High Durability		
High Corrosion Susceptibility		Low Corrosion Susceptibility		

#### KC-135 Materials

- Used best materials available in 1955
- First 30 years saw minimal degradation
- Widespread corrosion problems began to surface in the late 1980s
- 1950s vintage materials continue to degrade
  - Using new materials in replacement parts
  - Using corrosion prevention processes

#### Assembly Techniques

	KC-135	E-8*	E-3*	C-141	C-5	C-17
Spotwelded Doublers	Yes	Yes	No	No	No	No
Fuselage Doublers Sealed	No	No	Integral	Yes	Yes	Bonded
Mating Surfaces Sealed	No	No	No	Yes	Yes	Yes
Steel Fasteners Sealed	No	No	No	Yes	Yes	Yes
Wing Skins Peened	No	No	No	Yes	Yes	Yes

#### KC-135 Assembly Techniques

- Structural parts hand drilled at Installation
- Corrosion prone assembly techniques
  - No barrier between dissimilar metals
- In 1950s, durability not a primary concern
  - Era of "throw-away" aircraft
  - A/C not expected to fly 20-30 years, much less 40-50 years

\* E-3/E-8 are 707-200 series aircraft

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Age

## Aircraft

### Aging Fleet Issues

**Problem:** Material degradation from exposure to environment

- Metals corrode/crack--safety of flight issue
  - Damage hard to find; location and severity are unpredictable
- Wiring insulation gets brittle and cracks
- Rubber hoses get brittle and crack
- Sealant dries, cracks, and comes loose
  - Increases repairs/replacement

Exfoliation Corrosion

Cracked Stabilizer  
Attach Fitting



Wing Skin Replacement



**Problem:** Increasing maintenance time/costs

- More and more parts must be inspected
- When age related damage is found, it is often significant and wide spread
- Major structures often require extensive repair or replacement
  - Long lead for materials and manufacture of major structure components

Reduces aircraft availability

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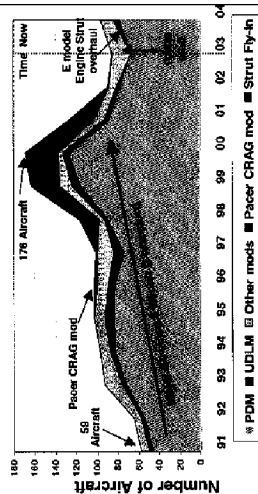
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### Aircraft in Depot Status



Age

## Aircraft Program Depot Maintenance (PDM) Trends

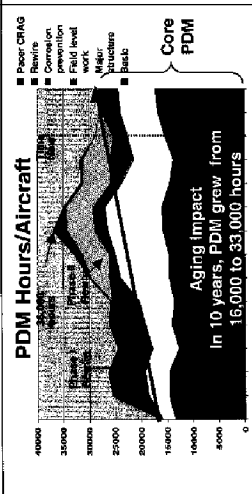
**Problem:** Fewer jets available to warfighter

**Cause:** Growth in depot possessed aircraft

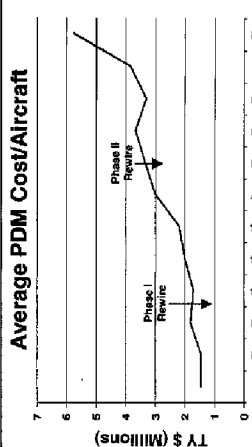
- Major structural repairs per a/c grew
  - Corrosion/cracking (age)
- Pacer CRAG modification initiated 1998
  - Reliability/capability upgrades (utility)
- Depots worked off backlog
- Restructured PDM process
- Added resources

Depot actions effective but maintenance costs growing  
\$1-2M per a/c in 1990...now \$6-7M per a/c in 2003

### PDM Hours/Aircraft



### Average PDM Cost/Aircraft



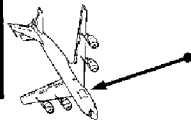
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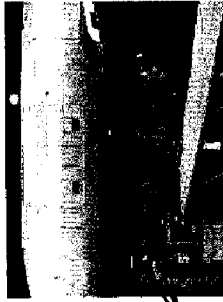
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Skins Installed  
Skins Removed



## Aircraft

### Example: Body Skin Replacement (Major Structural Repair/Remanufacture)

Body skins enclose the body fuel tanks

**Problem:** Corrosion develops between the layers of spot-welded skins

**Cause:** Body skins have two or more layers spot welded together for added strength and are susceptible to corrosion

**Fix:** Replacement of fuselage skins

- Three lower body skins removed due to excessive corrosion damage

- 1,700 to 1,800 man-hours for 3 skins

- Parts/labor cost \$342,000 to \$358,000

**Limitations:** Aircraft must be carefully supported to prevent movement during replacement

- No original manufacturing jigs exist -- must design/manufacture

- Concurrent work is very limited during a major structural repair such as this....adds flow days

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## Aircraft

### Example: Wing Attachment Fitting (Major Structural Repair/Remanufacture)

Fitting Installed  
(as seen from wheel well)



The wing attachment fitting attaches the wing to the aircraft body...critical structure component

**Problem:** The fitting experienced corrosion in the wing attachment pin hole

**Cause:** Prior to improving the pin hole seal, water could enter and get trapped in the pin hole causing corrosion

**Fix:** Replace fitting

• 2,400 to 2,500 man-hours

• Parts/labor cost \$450,000 to \$470,000

**Limitations:** Requires major disassembly of wings/fuselage to repair

- Engines, boom, landing gear, and center-wing lower skin panels must be removed
- Special aircraft jiggling required and concurrent work is very limited



Pin hole

Fitting removed

Wing attachment pin

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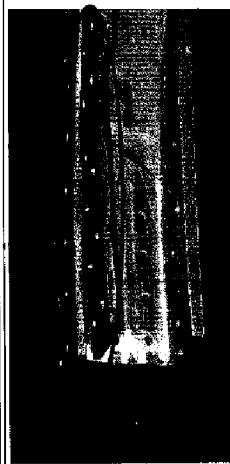
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Installed frame  
(As seen from wheel well)



Frame  
removed



Cracked Flange

## Aircraft

### Example: Body Bulkhead Frame (Major Structural Repair/Remanufacture)

The body bulkhead frame transfers wing loads to the aircraft body

**Problem:** These frames are replaced because of a crack in the upper portion of the frame

**Cause:** Stress corrosion cracking

**Fix:** Replace frame

- 800 to 900 man-hours
- Parts/labor cost \$137,000 to \$153,000

**Limitations:** Requires major disassembly of aircraft

- Engines, boom, landing gear, and floor panels must be removed
- Special aircraft jiggging required and concurrent work is very limited

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Struts Removed  
from Aircraft

Close-up of Severe Strut Corrosion



## Aircraft

Example: E model Engine Struts  
(Major Structural Repair/Remanufacture)

Engine struts attach the engine to the wing

**Problem:** The E model struts are near the end of their service life

**Cause:** Fatigue cracking and corrosion after long term exposure to high temperatures and corrosive environments

■ Struts were replaced during E-model re-engineing with ones from retired commercial 707 aircraft (1982 - 1990)

**Fix:** Repair/overhaul struts on E model aircraft

■ Interim repair FY01-04 good for up to five years

■ Air Force is evaluating timeframe for the overhaul program - est. \$2.9M per aircraft

### Limitations:

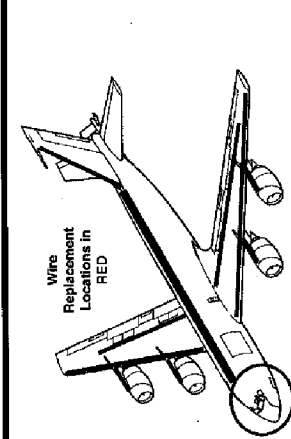
■ Engines, ducting, plumbing, throttle control components, and wiring must be removed from strut and reinstalled



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Age

## Aircraft Electrical Wire Replacement



Rewire program began in 1989 and replaces all aircraft wiring over 3 PDM cycles

Problem: The original wiring has degraded after 30+ years of service

- Wire Insulation was made from hazardous PVC materials that could emit toxic fumes if overheated

Cause: Vibration during operation causes wires to abrade and connections to loosen; aging causes cracked/brittle insulation

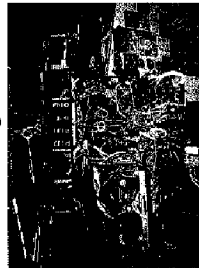
Fix: Approximately 75% of all wiring on KC-135 tankers has been replaced

- Adds approximately 5,000+ man-hours per PDM cycle
- Parts and labor approximately \$1.9 million per aircraft
- Global Air Traffic Management (GATM) replaces up to 5% with the remaining 20% replaced in final rewire phase

Interior Body Rewire  
In Progress



Cockpit Rewire  
In Progress



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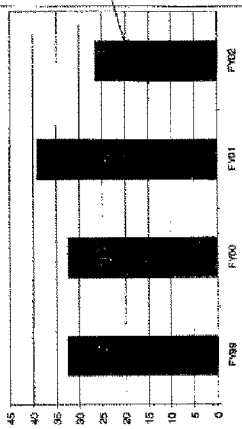
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## Aircraft

### Field Level Inspections and Maintenance

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Scheduled Maintenance Down Days/Year



Problem: Periodic inspections account for largest portion of aircraft in Non-Mission Capable (NMC) status at wing level

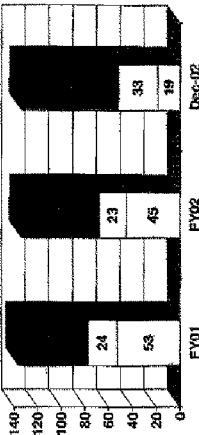
- Decreased downtime from FY01 to FY02 due to ONE and OEF high ops tempo

- Interior refurb deferred
- Will ramp back up if Ops tempo slows
- Tanker inspection interval is 360 days
- Average 2,014 man-hours per inspection
- Defects discovered during field inspections increasingly require extensive maintenance

Aircraft undergoing Periodic Inspection



KC-135E Average Annual Availability



Legend: ☐ Depot Mix/mode ☐ Field Non Mission Capable ☐ Mission Capable

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Age

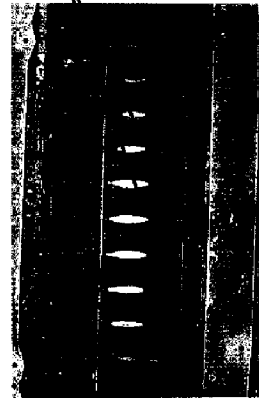
## Aircraft

### Example: Field Level Maintenance



**Problem:** Corrosion damage increasingly found during field level inspections

- Range from 50 to 100+ man-hours to repair



**Problem:** Increasing damage observed in various systems

- This is chaffing damage caused by the conditioned air distribution duct
- 90 to 100 man-hours to repair
- Must remove floor boards and air distribution duct to gain access

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Age

Aircraft

Example: Field Level Maintenance

Fuel Bladder Pre-  
Installation Inspection

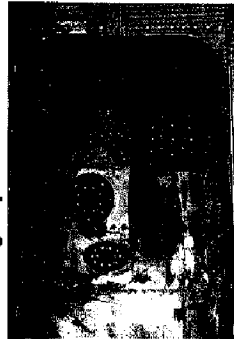
Production Break  
Fuel Leak Repair



Problem: Fuel leaks are a high non-mission capable driver

- From Jan 98 – Jun 02, the fleet averaged
  - 120 fuel leak repairs per month
  - 3,245 man-hours per month
- Total annual cost - \$1,050,000

Peeling Topcoat in Fuel Tank



Problem: 317 KC-135 aircraft experienced topcoat delamination since 1995

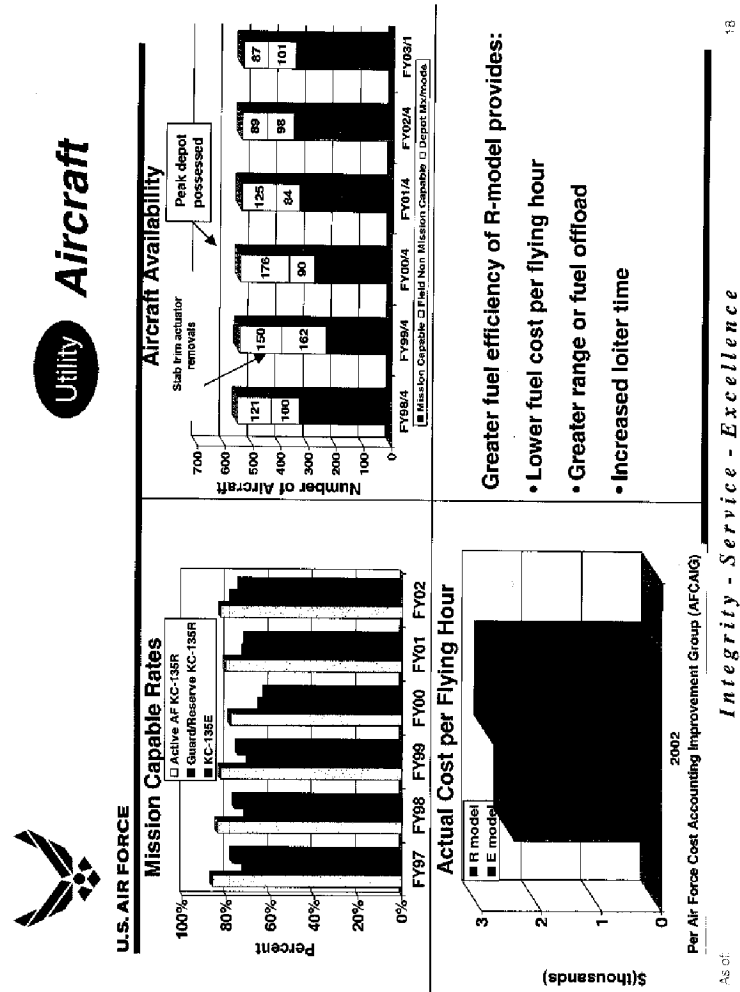
- Topcoat applied during manufacture of aircraft for corrosion protection
- Fuel tanks are entered periodically to inspect for and remove loose topcoat
  - 2,870 man-hours per month for the fleet
- Total annual cost - \$900,000 - \$950,000

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#### QUESTIONS SUBMITTED BY SENATOR PAT ROBERTS

##### JOINT PRIMARY AIRCREW TRAINING SYSTEM

4. Senator ROBERTS. Secretary Sambur, how has the Navy's decision to postpone participation in the Joint Primary Aircrew Training System (JPATS) program affected Air Force costs for the program? What other impacts, if any, has the Navy decision had on the Air Force's JPATS program?

Secretary SAMPUR. The Navy deferred acquisition of 72 total JPATS aircraft through the FYDP including all aircraft from fiscal year 2002 through fiscal year 2006. At the time of the deferral, the Air Force used the program's joint cost model and calculated the impact to be \$44.9 million across the FYDP, with an average cost increase of \$0.2 million per Air Force aircraft.

However, since that calculation was made, the Air Force accelerated its procurement by 18 aircraft within the FYDP and negotiated a new follow-on contract for fiscal year 2002 through fiscal year 2006 with revised rates. These actions have partially mitigated the impact of the Navy's procurement deferral.

The biggest operational impact of the deferral is to delay full implementation of Joint Specialized Undergraduate Pilot Training (JSPUT). Currently, some USAF pilots are trained by the U.S. Navy through a shared training agreement. These USAF pilots are trained in the Navy's older T-34 without modern digital avionics, instead of the more modern T-6 like their USAF trained counterparts.

5. Senator ROBERTS. Secretary Young, the Navy continues to postpone its participation in the JPATS procurement program, and does not plan to reenter the program until 2007. Wouldn't Navy participation in the program reduce overall program costs and benefit the Navy?

Secretary YOUNG. In preparation for the fiscal year 2002 budget cycle, the Navy conducted a prioritized review of Navy programs, including JPATS procurement profiles. The Navy's decision to defer procurement of JPATS was based on competing budget priorities and the significant service life remaining on the T-34C.

6. Senator ROBERTS. Secretary Young, doesn't the increased safety in initial pilot training resulting from use of JPATS aircraft justify the Navy's participation in the program before 2007?

Secretary YOUNG. The T-34C has an excellent safety record. The mishap rate for the past 5 years is below the training command average, and less than half the overall average for naval aviation. Although the JPATS air vehicle incorporates several important safety features, the T-34C is a safe and capable platform expected to train future naval aviators through the end of its service life.

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#### QUESTIONS SUBMITTED BY SENATOR ELIZABETH DOLE

##### NAVY AND MARINE CORPS TACTICAL AIR INTEGRATION

7. Senator DOLE. Secretary Young, Admiral Nathman, and General Hough, the integration of Navy and Marine Corps tactical air operations has been under discussion for several years. It is my understanding that as a part of such integration two Navy squadrons have already moved to the Marine Corps Air Station (MCAS) Beaufort in South Carolina. What is the principal goal and what are the benefits of integrating tactical air operations?

Secretary YOUNG and Admiral NATHMAN. Four Marine Corps F/A-18 squadrons have been integrated into USN Carrier Air Wings (CVWs) since the early 1990s. The current TACAIR Integration plan is much broader in scope and will integrate a Marine Corps F/A-18 squadron into each of the 10 USN CVWs, as well as integrating 3 USN F/A-18 squadrons into the USMC Unit Deployment Program. The basing of 2 USN F/A-18 squadrons at MCAS Beaufort was not part of the TACAIR Integration plan. It resulted from the BRAC decision to close NAS Cecil Field in Florida. The BRAC closure of Cecil Field required the F/A-18s based there to move to NAS Oceana, Virginia. The aircraft loading at NAS Oceana would not accommodate all the squadrons needing relocation, resulting in 2 USN F/A-18 squadrons moving to MCAS Beaufort. Air operations at MCAS Beaufort are similar to those at USN sites, although operational profiles may vary somewhat. The aircraft are maintained in a similar manner, and logistics for both services are supported appropriately. The principal goals of the TACAIR Integration plan were to reduce overhead and operating costs, reduce total inventory, retire legacy aircraft, reduce the procurement bow wave, and increase warfighting capability. This is an affordable solution for the future of DON TACAIR and will yield a smaller, more capable, more reliable force.

General HOUGH. The goal of TACAIR integration is simple—Navy and Marine strike fighter squadrons training, deploying and fighting side-by-side as part of carrier air wings and land-based expeditionary units. This merging of service assets and capabilities will greatly improve our cross training, coordination and warfighting capabilities to create a truly interchangeable strike fighter force.

The creation of an interchangeable strike fighter force will optimize forward deployed naval air power and those aircraft available for surge operations; moreover, the TAI plan will reduce overhead costs through efficiencies realized in air wing training and employment as well as the revised requirements for new aircraft procurement.

By further integrating strike fighter forces, the Department of the Navy will more efficiently and effectively serve the Nation's national security requirements from the sea with a realistic and affordable integration plan.

8. Senator DOLE. Secretary Young, Admiral Nathman, and General Hough, would you describe how this has worked at MCAS Beaufort and how you see this concept working in the future?

Secretary YOUNG and Admiral NATHMAN. The arrangement has worked very well, with a high degree of cooperation between the two Services. One operational advantage is that the three F/A-18 squadrons assigned to CVW-1 (2 USN, 1 USMC) are all based at MCAS Beaufort, allowing air wing training with colocated units. The continued integration of Navy and Marine squadrons will reap similar benefits.

General HOUGH. The placement of two Navy F/A-18 squadrons in Marine Corps Air Station Beaufort was a facilities and basing initiative and not the result of the current TACAIR integration plan. However, it is safe to say that many benefits have resulted from colocating the strike fighters of Carrier Air Wing 1 with Marine Aircraft Group-31.

Cross training between units becomes much more effective when they operate off the same base and follow similar training plans. Separate service techniques, tactics and procedures are more easily integrated. As a result, training is more effective and efficient. The Navy squadrons based at MCAS Beaufort have integrated into the Marine Corps' Marine Aviation Logistics Squadron (MALS) and the Intermediate Maintenance Activities (IMA). To date, this integration has worked well for all participants. The Marine Corps plans to continue this level of integration until the introduction of the JSF when another opportunity to integrate will occur.

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#### QUESTIONS SUBMITTED BY SENATOR JOSEPH I. LIEBERMAN

##### F-22 SOFTWARE TESTING PROCEDURES

9. Senator LIEBERMAN. Secretary Sambur, software instability has been causing delays in the developmental testing, which has translated into delays in the planned start of operational testing. I understand that the Air Force is using a flying test bed (FTB) aircraft to test software before installing that software in the F/A-22 flight test aircraft. Are you still conducting rigorous testing of the software in the FTB aircraft before installing the software on the flight test aircraft?

Secretary SAMBUR. Yes, we are still using the FTB. In addition, we have fundamentally changed our software approach based on recommendations from the OSD Avionics Advisory Team. The FTB is configured for correcting instabilities in the Communications Navigations Identification (CNI) system, the most challenging component of the avionics. We have also dedicated aircraft #4006 as an additional FTB. Aircraft #4006 is being used to determine, correct, and verify root causes of the software instability events. We are confident that the continuation of a rigorous software engineering approach, new data capturing methods, and the use of aircraft #4006 in combination with the FTB will allow us to resolve the software instabilities.

##### CONTINUED EROSION IN THE F-22 PRODUCTION COSTS

10. Senator LIEBERMAN. Secretary Sambur, I understand that you are not buying as many F/A-22 aircraft in fiscal year 2003 as were authorized and appropriated by Congress. In part this reflects shifting resources to cover additional research and development effort, but it also reflects production cost increases. Have we seen the last of the production cost increases, assuming that we do not find other problems during operational testing?

Secretary SAMBUR. Yes. With program stability, we are confident there will be additional cost increases. Production costs continue to decrease. For example, Lot 3 aircraft costs are 11 percent less than Lot 2, and 46 percent less than the initial production lot. The current estimate is based on realistic assumptions, actual negotiated lots on contract, and conservative return multiple for future cost reduction initiatives.

11. Senator LIEBERMAN. Secretary Sambur, one of the methods you mentioned in your prepared remarks is "stability of requirements" as a mechanism for precluding future cost increases. How is the goal of "stability of requirements" consistent with adding air-to-ground capability to the original F-22 program?

Secretary SAMBUR. In the case of the F/A-22, the baseline requirements have been stable. The F/A-22 program has had an inherent air-to-ground capability (i.e., JDAM) in the EMD program since 1993.

#### JOINT STRIKE FIGHTER ALTERNATE ENGINE PROGRAM

12. Senator LIEBERMAN. Secretary Young, I understand that the JSF program has made a sizeable reduction in the effort planned for fiscal year 2004 on the alternate engine. I understand this reduction represents a disproportionate share of an inflation adjustment assessed against the overall program. What is your assessment of the effect of this reduction?

Secretary YOUNG. The JSF Program Office is analyzing ways to limit the impacts of the GE F136 funding reductions in fiscal year 2004 and out (the inflation reduction was not applied to GE F136 fiscal year 2003 effort), but the production engine competition likely will be delayed. The Department will reevaluate GE F136 funding and schedule as part of the fiscal year 2005 budget development process.

13. Senator LIEBERMAN. Secretary Young, are there any steps you can take to mitigate any potential delay in introducing the alternate engine to the program?

Secretary YOUNG. The JSF Program Office is analyzing ways to limit the impacts of the GE F136 funding reductions in fiscal year 2004 and out (the inflation reduction was not applied to GE F136 fiscal year 2003 effort). The Department will reevaluate GE F136 funding and schedule as part of the fiscal year 2005 budget development process.

#### POST-OPERATION ANACONDA PROCESS IMPROVEMENTS

14. Senator LIEBERMAN. General Keys, the subcommittee heard testimony from General Keane, the Army Vice Chief of Staff, several weeks ago. During those discussions, we asked General Keane about the Army and Air Force efforts to improve the ability to manage close air support operations, based on the concerns that came from Operation Anaconda. I was encouraged by his comments on the progress that the senior Air Force and Army leadership have made in dealing with these concerns. Would you like to comment on the Air Force's perspective on these discussions?

General KEYS. Air-ground operations are the key to success for the joint force. As a result, we have met several times at the 4-star level subsequent to our operations in Operation Enduring Freedom. Our joint doctrine and close air support procedures developed over 50+ years and tweaked during Korea, Vietnam, and Operation Desert Storm are sound. As a result of the lessons learned in Anaconda, we have had great success in Afghanistan with operations that were potentially just as hazardous as that situation, but with none of the problems experienced. We believe this is because we learned our lessons well and carried that knowledge into subsequent Operation Enduring Freedom operations. This knowledge in-turn became precursor to the successes we've had in Operation Iraqi Freedom.

We continue to learn it is critical for the air component to know and understand the ground component commander's scheme of maneuver and for the ground commander to know and understand the air component's scheme of aerial maneuver and capabilities. We continue to actively support the Joint Close Air Support (CAS) Executive Steering Committee's efforts to improve joint close air support operations, training, equipment and interoperability. Finally, my staff is working closely with their Army counterparts to accelerate the revision of our Memorandum of Understanding on Liaison Support. This revision will provide improved two-way liaison support between the Services and improve our inter-service working relationship.

15. Senator LIEBERMAN. General Keys, are we seeing concrete evidence of the fruits of those discussions in Operation Iraqi Freedom?

General KEYS. A lesson learned from Operation Enduring Freedom is the need to better integrate and coordinate our operation from strategic through tactical levels. I detailed Major General Leaf from my staff to head up a senior air component coordination element (ACCE) representation to the land component commander and more importantly, to provide the land component commander the critical "Airman's perspective" at the strategic and operational level of war. We also provided ACCE teams to other major head force entities. Accordingly, we made every attempt to solidify our joint integration in planning and conducting joint combat ops through every echelon. We wanted to ensure our liaisons were properly trained, manned, and equipped for their tasks. My staff also expended a tremendous amount of effort to ensure we had trained and equipped special tactics teams and tactical air control



parties in place to meet the land component commander's requirements. At the tactical level this meant ensuring Air Support Operations Centers and Tactical Air Control Parties were in place in sufficient quantities to support the Army's V Corps as well as special operations forces and that they had the newest, most interoperable equipment. Every indication we have received so far says the air-ground integration we have seen and continue to see is remarkable, and is a critical factor in the resounding success of the overall operation.

#### PASSIVE ATTACK WEAPON

16. Senator LIEBERMAN. Secretary Sambur, your prepared statement highlights the shortened development you were able to achieve in a program you called the Passive Attack Weapon (PAW). What is the PAW?

Secretary SAMBUR. PAW consists of non-explosive kinetic energy penetrators packaged in a tactical dispenser and guided with the Wind Corrected Munitions Dispenser (WCMD) tail guidance kit. The weapon is integrated on the F-16 and B-52, with future integration planned for the F-15E.

17. Senator LIEBERMAN. Secretary Sambur, what extraordinary steps did the Air Force have to take in order to get this weapon to the field so quickly?

Secretary SAMBUR. Delivering a new capability in less than 6 months did not allow "business as usual" thinking, strategies, or execution. The PAW team constructed a program that demonstrated success in employing "Best Practice" initiatives. Using extensive cross-functional teaming as advocated in the Department's Section 912(c) Report of the Commercial Business Environment Study Group, a multi-command team was created to plan and execute the program. Team members were colocated within the program office and guided by a single goal of delivering a unique new combat capability by December 31, 2002. No military specifications were mandatory on PAW contracts and performance-based requirements were used—requirements were stated in less than one-half page in each contract.

Technical data was exchanged using a web-based electronic transfer database, making information available and enabling rapid decisionmaking. Another initiative of great benefit was establishing and executing a seamless verification program. All information was shared with the extended team. In particular, the Operational Test Agency was given complete access to the program office's decisionmaking process.

Ultimately, the effectiveness of the seamless verification approach is shown in AFOTEC's Operational Utility Evaluation making use of data from each of four weapons delivered during the flight test program, and traditional developmental and operational test activities were invisible.

Finally, the Program Director was completely empowered to make all decisions on the program. As a result, decision timelines were extremely short, and the official with program accountability was vested with complete authority to ensure its success.

18. Senator LIEBERMAN. Secretary Sambur, which of these steps might be applicable to a broader set of acquisition programs?

Secretary SAMBUR. All of these steps can be applicable to a broader set of acquisition programs. Implementation of a focused, cross-functional team all reporting to a Program Manager empowered to make decisions can significantly reduce time from program initiation to fielding. Also, acceptance of seamless verification techniques promotes efficient and effective use of test resources, while reducing overall time to conduct required development and operational test activities. Lastly, understanding the capabilities required by the warfighter, and measuring against the readiness of available technologies, will allow better decisionmaking and risk assessment by the Program Manager and the acquisition-warfighter team.

#### "FRIENDLY FIRE" ISSUES

19. Senator LIEBERMAN. Admiral Nathman, General Hough, and General Keys, I know that flying extremely close to the ground while trying to identify friend from foe at high speeds is a daunting task. However, on March 28 an American A-10 apparently attacked a small convoy of British Chieftain tanks and Scimitar armored vehicles from the Household Cavalry. Preliminary reports indicate that the A-10 aircraft pressed the attack despite the fact that: (1) the attack took place in a British-controlled area; (2) the British armor had used colored smoke to identify themselves to the aircraft; and (3) the tanks and armored vehicles had friendly markings

applied to their exterior. In the end one British tanker was killed and four were injured in the attack.

Given the importance of coalitions to our national security, working with coalition partners, especially the British, will increasingly become the rule rather than the exception. How can we address the question of whether or not our procedures or training need to be updated to prevent such unfortunate accidents from recurring in the future?

Admiral NATHMAN. The Navy recognizes the criticality of discerning friend from foe prior to engagement of any force. The Naval Strike and Air Warfare Center (NSAWC) in Fallon, Nevada, is responsible for training and evaluating each carrier air wing during the Inter Deployment Training Cycle (IDTC). Joint close air support, as governed by the JCAS Manual 3-09.3, and Rules of Engagement (ROE) are integral parts of friendly fire deconfliction training. Aviators, ground support and battlegroup leadership are briefed on carrier, air wing performance in friendly fire and ROE training missions. The JCAS Executive Steering Committee and NSAWC frequently review exercises to ensure curriculum satisfies current fleet training requirements and properly simulates the challenges faced in actual theatre operations. The Navy has incorporated lessons learned from the unique air-to-ground missions recently conducted in Afghanistan and will closely examine friendly fire incidents that occur during Operation Iraqi Freedom.

General HOUGH. The Department of Defense devotes a tremendous amount of energy to prevent "Friendly Fire" mishaps from occurring. Joint Publication 3-09.3 outlines the "Tactics, Techniques, and Procedures (TTP) for Joint Close Air Support." The Joint Staff just completed a review and revision of this publication and the recommendations and procedural changes made appear to be working well in Operation Iraqi Freedom according to initial feedback from the Marine Corps Assessment Team. The General Accounting Office has completed a study on training issues and is preparing to release their report. The Marine Corps awaits the results of this study and anticipates incorporating GAO recommendations.

General KEYS. We have tactics, techniques, and procedures designed to minimize the likelihood of such mishaps. An investigation will examine procedures and training as well as other pertinent factors. These will include the location of the convoy, the control measures in effect, the identification measures established for air-to-ground operations in the area, lighting conditions, weather, and similar potential relevant facts.

While this incident is under investigation, any premature comment as to the cause of this tragedy could jeopardize the integrity of that investigation and consequently reduce the effectiveness of the remedies that investigation may recommend. It would therefore be particularly inappropriate to comment on "preliminary reports" whether they originate from official of press sources. We will look forward to informing you of the results of the investigation when that process is complete.

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QUESTION SUBMITTED BY SENATOR EVAN BAYH

#### JOINT STRIKE FIGHTER

20. Senator BAYH. Secretary Young, the original fiscal year 2004 budget request included \$2.172 billion for the Navy's portion of the pre-System Development and Demonstration phase of the JSF program. Of this amount, \$156 million was designated for continued development of the F136 engine as an interchangeable propulsion system with first flight in fiscal year 2008.

I was recently informed of a post-budget adjustment, which would reduce F136 funding by \$56 million in fiscal year 2004, a total reduction of \$442 million through the current FYDP. Last year, Congress added funding to the JSF program specifically to ensure that the F136 would be ready for initial production as early as possible. This recent budget adjustment jeopardizes congressional intent and I will continue to work with the committee and the Department to return the F136 to its original schedule.

I would like to know why such a large portion of a routine consumer price index adjustment was disproportionately distributed to a single element of the JSF program (F136), and what steps will be taken to ensure that any adjustment is more equitably allocated? In addition, I would like to know if this cut by the Program Office was intended to set back F136 production? I support returning the F136 to its original schedule and seek your concurrence that the Program Office shares this sentiment.

Secretary YOUNG. The Office of Management and Budget issued revised inflation indices in January 2003. This required the JSF Program Office to reevaluate funding allocations within the program in fiscal year 2003 and out. To hold schedule to first flight, production start, and fielding, and meet the services' Initial Operational Capability dates, funding was first applied to the Lockheed Martin Air System and the Pratt-Whitney propulsion contracts. The remainder of the funding was then allocated to the General Electric F136 engine contract and the Government support portions of the program. The JSF Program Office is analyzing ways to limit the impacts of the GE F136 funding reductions in fiscal year 2004 and out (the inflation reduction was not applied to GE F136 fiscal year 2003 effort), but the production engine competition likely will be delayed. The Department will reevaluate GE F136 funding and schedule as part of the fiscal year 2005 budget development process.

[Whereupon, at 4:15 p.m., the subcommittee adjourned.]

